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ECONOMIC SITUATION OF  
HOG PRODUCERS

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LETTER

FROM

THE SECRETARY OF AGRICULTURE

TRANSMITTING

IN RESPONSE TO SENATE RESOLUTION NO. 281, A  
REPORT PERTAINING TO THE HOG SITUATION  
AND THE PROBABLE EFFECTS OF THE PRO-  
POSED EXPORT DEBENTURE, EQUALIZA-  
TION FEE, AND DOMESTIC ALLOTMENT  
PLANS FOR FARM RELIEF, ON THE  
ECONOMIC POSITION OF  
HOG PRODUCERS



FEBRUARY 9, 1933.—Ordered to lie on the table, and be printed  
with illustrations

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## LETTER OF TRANSMITTAL

DEPARTMENT OF AGRICULTURE,  
*Washington, February 9, 1933.*

The PRESIDENT OF THE SENATE,  
*Washington, D. C.*

SIR: Pursuant to the request made under Senate Resolution No. 281, first session of the Seventy-second Congress, I am transmitting herewith a report based on a study made by the Bureau of Agricultural Economics pertaining to the hog situation and the probable effects of the proposed export debenture, equalization fee, and domestic allotment plans for farm relief, on the economic position of hog producers.

Sincerely yours,

ARTHUR M. HYDE.



## LETTER OF SUBMITTAL

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DEPARTMENT OF AGRICULTURE,  
BUREAU OF AGRICULTURAL ECONOMICS,  
*Washington, D. C., February 9, 1933.*

The SECRETARY OF AGRICULTURE.

DEAR MR. SECRETARY: Under Senate Resolution 281, first session, Seventy-second Congress, the Department of Agriculture and the Federal Farm Board were requested to investigate and report jointly, or severally, on the economic situation of hog producers and the way in which certain proposed plans of farm relief would affect the economic position of hog producers. You, in turn, requested this bureau to make the desired study of this subject in cooperation with the economic staff of the Federal Farm Board.

In order to comply with your request there was created a committee consisting of members of the staffs of the Bureau of Agricultural Economics and of the Federal Farm Board to make this study. This report has been prepared largely in this bureau and represents the conclusions of this bureau.

The subject is an intricate one upon which there are widely differing views. Every effort has been made to base our findings on careful analysis of the available data and to arrive at our conclusions as a result of such analysis. Pursuant to the resolution the report attempts to appraise the economic workability of the several relief plans only as they relate to hogs and does not cover any legal or constitutional questions that may be involved in any of these measures.

Sincerely yours,

NILS A. OLSEN,  
*Chief, Bureau of Agricultural Economics.*







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# ECONOMIC SITUATION OF HOG PRODUCERS

## INTRODUCTION

This investigation was made under the provisions of Senate Resolution 281, first session of the Seventy-second Congress. The resolution reads as follows:

*Resolved*, That the Senate request the United States Department of Agriculture and the Federal Farm Board, jointly or severally, to investigate the economic situation of hog producers, the way in which various of proposed plans for farm relief (including the equalization-fee plan, the export-debenture plan, the domestic-allotment plan, the voluntary domestic-allotment plan, and such other plans as the two agencies may wish to include) would probably offset or improve the position of hog producers, both in the short and long runs, and to report thereon to the Senate by the next session of Congress.

The study called for by this Senate resolution has been divided into three major parts:

Part I contains a condensed statement of the present economic situation of hog producers and the major factors responsible for it.

Part II describes the principal economic characteristics of the hog industry. This section is included for two purposes: (1) To explain in greater detail the principal developments leading up to the present hog situation, and (2) to describe supply and price relationships, a consideration of which is necessary in appraising the probable effects of the various relief plans.

In Part III the export debenture, equalization fee, and domestic allotment plans are analyzed to determine as nearly as possible the extent to which each plan gives promise of correcting the present economic difficulties confronting hog producers or of offsetting at least in part the forces that have created the present condition of the hog industry.

Two appendixes are included in the report. In Appendix A is presented a brief statement of the methods used and agencies involved in marketing hogs and in processing and distributing hog products. This information is included because of the close relation of many of the problems of administering relief plans to the processes involved in converting live animals into meat and distributing the meat to consumers. Appendix B contains a compilation of statistics pertaining to the hog industry.

## SUMMARY

### THE PRESENT HOG SITUATION

The trend of hog prices since 1929 has been sharply downward and prices are now at the lowest level in more than 50 years. The gross income from hogs in 1932 was only one-third that of 1929 and was the lowest since before the World War. In terms of commodities farmers buy, the value of hogs during the year was only about one-half that of three years earlier, and only two-fifths their value in the pre-war period, 1910-1914.

The sharp decline in hog prices has not been due to an increase in domestic hog production. Slaughter supplies of hogs during 1932 were about 7 per cent smaller than in 1929.



The principal factor responsible for the fall in hog prices and in the total returns from hogs during the last three years has been the great reduction in consumer incomes at home and abroad, associated with the rapid decline in the general price level and the sharp curtailment in business activity. Total consumer incomes in the United States during 1932 were only about one-half as large as in 1929, and nearly one-third of the persons employed in industries other than agriculture three years ago are now unemployed. The costs of marketing hogs and of distributing hog products during this period have been reduced only slightly, and the proportion of consumer expenditures for hog products which now goes to hog producers is the smallest for many years.

Reduced consumer incomes abroad, together with an expansion in foreign hog production and a marked increase in restrictions on international trade have greatly reduced the foreign demand for United States hog products. Exports of pork and lard in 1932 were the smallest in 50 years, constituting less than 6 per cent of the total production.

Despite the low level of hog prices during 1932, corn prices were even lower and the price relationship between hogs and corn was such as to encourage hog production during the last half of the year. The 1932 fall pig crop was 4 per cent larger than the fall crop of 1931. The number of sows to farrow in the spring of 1933, based on breeding intentions reported to the United States Department of Agriculture is estimated as 2 per cent larger than the number that farrowed in the spring of 1932. If the 1933 spring crop is increased only to about the extent shown by the estimates of sows to farrow, the number of hogs for slaughter in this country during 1933 and early 1934 will not be greatly different from the average of the corresponding periods since 1930.

Hog slaughter in foreign countries during 1933 and 1934 is expected to be smaller than in 1932. This reduction in foreign slaughter supplies is not likely to stimulate exports of United States hog products to the extent that similar reductions have increased exports in the past, if the various international trade barriers adopted recently should remain in force.

#### SOME IMPORTANT ECONOMIC CHARACTERISTICS OF THE HOG INDUSTRY

Although the various relief plans proposed for improving the economic situation of hog producers differ in principle, in method of operation, or in both, there are certain economic characteristics of the hog industry from the standpoint of production, marketing, and consumption both in this country and abroad that are basic to the appraisal of the effectiveness of any of the plans.

One of these characteristics is that the supply of hog products consumed in any year represents the approximate supply produced and not the quantity of hog products that can be moved into consumption at a particular price. The perishability of the products together with the costs and risks involved in storage operations make only limited holding possible. Thus, market supplies can not be adjusted promptly to changes in demand, because of the time required in hog production and the rate at which the finished hog products are moved into consumption after the hogs are slaughtered. As a result, prices are adjusted to the level where, under existing demand conditions, the



supply will be consumed. The maintenance of prices above such a level would result in a shift from the consumption of hog products to the consumption of other foods.

Another basic element is that the total amount of money spent by consumers for hog products is governed by consumer incomes. Total consumer expenditures for pork and lard during the postwar period have been very closely related to consumer incomes, and, as indicated earlier, the sharp decline in the latter during the last three years is almost entirely responsible for the present low level of hog prices. At a given level of total consumer incomes the total amount spent for pork and lard does not vary greatly with changes in the quantity consumed. Changes in supply are normally offset by inverse changes in retail prices.

Hog production is largely dependent on the production and prices of corn. Approximately 50 per cent of the corn produced in the United States is usually marketed through hogs. The bulk of the hog supply is produced in the Corn Belt (North Central States). There is a distinct tendency for hog production to move in cycles of three to five years' duration. These cycles are largely the result of periodic shifts in the relation between hog prices and corn prices. When the relation of the price of hogs to the price of corn makes it more desirable to market the corn through hogs than to sell it for cash, hog production is increased. When this price relationship is unfavorable to hog production, it is curtailed. Therefore, the number of hogs marketed during a specific period is the result of breeding decisions made many months previous, largely on the basis of the relation of hog prices to feed prices when the producers made these decisions. This reaction to price relationships in hog production occurs in foreign hog-producing countries as well as in the United States.

These responses to price in hog production at home and abroad have a distinct relation to the problem of adjusting the production of hogs in order to maintain any given price or any given relationship of hog prices to other prices, and are especially significant in relation to any effort to limit hog production in stipulated proportions.

#### PROBABLE EFFECTS OF RELIEF PLANS IF APPLIED TO HOGS

*Export debenture plan.*—The export debenture plan is designed to raise domestic prices above their normal relation to world prices by stimulating exports through an export bounty in the form of a "debenture," having a specified face value redeemable in payment of import duties.

Domestic prices of hog products probably would be raised initially by the operation of the plan unless this result is prevented by offsetting restrictions by foreign countries. The increase in the price, however, would be considerably less than the face value of the debenture, because the increased exports would depress the level of world prices of the commodity and because the debenture itself would sell at a slight discount which would make its effective value somewhat less than its face value. The possibilities of effective application of the plan appear to be greater on lard than on pork, but part of the price enhancement on lard would be distributed to other hog products. A large proportion of the initial rise in prices of the hog products probably would be reflected in prices of live hogs, but the rise in the price per pound of live hogs would be less than the rise in the price per pound of pork and lard, because of the



difference between the weight of the live animal and the weight of the salable products obtained therefrom.

Administration of the plan would be simple and little direct administrative expense would be involved. The redemption of export debentures would reduce the customs receipts of the United States Treasury, since such debentures would be used instead of cash in the payment of customs duties. The corresponding reduction in Federal revenue would have to be made up from other sources. Consumers, at least initially, would pay higher prices for hog products, because of a reduction in the supply available for domestic consumption. Their total expenditures for such products, however, would not be greatly different with a given level of consumer incomes.

To the extent that an advance in hog prices to producers would create a more favorable relation between hog prices and feed prices, the production of hogs and of competing commodities would tend to increase. But the effect on production would depend somewhat upon the original level of hog prices. The incentive for expansion probably would be less when hog prices originally are at a low level in relation to prices of competing commodities and costs of production. Any increase in production resulting from the operations of the plan would tend to cause prices to decline from the level to which they had been originally raised.

It should not be supposed, however, that any increase in prices of hogs, resulting from any cause whatever, would defeat itself. Price increases due to an increase in the general price level or to improvement in consumer demand and in foreign outlet would carry with them the sustaining effect of stronger and wider markets for the product.

*The equalization fee plan.*—The equalization fee plan, like the export debenture plan, is designed to raise prices to producers by stimulating exports and maintaining domestic prices above their normal relation to world prices. In effect, the losses involved in maintaining domestic prices above world prices must be paid out of a stabilization fund collected by levying a fee upon the transportation, processing, or sale of each marketed unit of the commodity.

The increase in exports resulting from the operation of the plan would cause domestic retail prices of hog products to rise and world prices of these products to decline. A consideration of the losses that would be incurred in disposing of larger supplies in foreign markets and of the costs involved in administering the plan, indicates that the net increase in hog prices would be less than commonly expected.

To the extent that hog prices would rise initially, there would be a tendency for production to increase, especially if the rise in hog prices should occur in a year of a large crop of corn. A provision for a reduction in the relief benefit if production is increased, would have little effect on the individual hog producer in planning his production program. An increase in production would increase the quantity to be exported. The effect of increased exports on world prices of foreign hog products probably would not be sufficient to cause material reduction in foreign hog production except over a considerable period of time, especially if foreign countries should impose offsetting restrictions on United States exports.

Some difficult problems, although probably not insurmountable, would be encountered in administering the plan. Estimating in



advance the amount of funds needed to administer the plan in order to determine the amount of the equalization fee would be a difficult problem. It would require forecasts of production, consumption, and exports, each of which would be affected by many factors in addition to the operation of the plan itself. Collection of the fee would either require a large administrative organization or result in a considerable amount of evasion of the fee.

*The domestic allotment plan.*—The domestic allotment plan has been presented in many forms, with the following basic aims:

(1) To increase the returns to the individual producer by means of a price supplement (variously called "domestic allotment benefit," "fair exchange allowance," "bonus," etc.) on his domestic allotment, that is, on that portion of his production which is deemed to represent his part of the domestic requirements for the crop or class of livestock; and

(2) To control production either by avoiding stimulation of production or by requiring definite curtailment by individual farmers as a condition of receiving benefits under the plan.

A tax would be levied on the processor at a fixed or a variable rate per unit of the commodity processed for domestic consumption, to provide funds for this price supplement and for meeting cost of administration. Wholesale and retail prices in the domestic market would be maintained above their normal relation to world prices by means of the tariff on the commodity or by collecting the adjustment charge on imports, or by both. Exportation of that part of the crop or class of livestock not required for domestic consumption would be permitted and even encouraged. This would be done by allowing exportation of the commodity in unprocessed form without payment of the tax, by an offset or tax rebate on any processed part of the commodity sold in export if the tax has been paid upon it, and by allowing processing in bond for export.

The plans embodying these elements appear to have widely different possibilities with respect to the different agricultural products. This report deals with the three major versions of the allotment plan only in their relation to hogs.

*Emergency agricultural relief plan* (Allotment plan without provisions for production control).—Under the emergency agricultural relief plan introduced in the first session of the Seventy-second Congress, an excise tax of 2 cents per pound live weight would be assessed on the slaughter of hogs. This tax would be paid into a special revolving fund. Exporters of hog products would receive "drawback" payments out of the fund equivalent to the tax paid on the poundage of live hogs yielding the products exported. After deduction of administrative costs, the balance of the fund would be distributed to producers in proportion to their sales moving into domestic consumption.

Since total consumer expenditures for hog products in this country are governed largely by consumer incomes, an increase in retail prices of hog products as a result of the tax would cause domestic consumption to decrease, thereby necessitating larger exports than formerly, assuming no change in production. The provision for the payment of a "drawback" on hog products exported would facilitate exports.

Total consumer expenditures for pork would not be increased significantly, unless total consumer income increased. The increase in exports might be considerable, but would represent a small proportion of our total supply. A part of the tax would be absorbed by con-



sumers, processors, and distributors, but the major part of the tax would be deducted from the prices of hogs to producers. Any increase in total returns to producers (price plus the supplement) therefore, would be small.

The collection of an excise tax from both wholesale and retail slaughterers on the live weight of hogs slaughtered should not present serious administrative difficulties except in areas in which a considerable proportion of the hogs are butchered by producers and other small slaughterers, and sold locally. In such areas and elsewhere there would be a tendency to increase farm slaughter and there would be some evasions of the tax through the sale of hog products to local retail distributors of meat or direct to consumers.

*Voluntary domestic allotment plan.*—The principles of the voluntary domestic allotment plan are the same as those of the emergency agricultural relief plan, except for the provisions for controlling production and paying tariff benefits only to those with production control contracts.

Under the voluntary domestic allotment plan, an elaborate organization would be set up to determine the allotments for individual producers, to enforce the provisions requiring curtailment of production, and to make the benefit payments. A control board or agency would determine the total quantity needed for domestic consumption and then apportion the allotments to the States on the basis of past production. State committees would determine county allotments, county committees would make township allotments, and the township committees would determine the allotments for individual producers.

Producers would not be compelled to come under the plan, but the fact that they could not share in the benefit payments if they remained outside probably would cause most producers who receive an important share of their cash income from hog production to come under the plan. Many producers whose production has been at a relatively low level during recent years or who produce largely for home consumption probably would elect to remain outside.

If the plan should succeed in reducing hog production materially, hog prices would rise and the total gross income from hogs probably would be increased temporarily. Over a long period, however, it is questionable whether the increase in total returns to producers could be maintained with the smaller volume of output. The effect on total returns is of vital importance, as increased return per unit of a reduced supply does not necessarily mean greater net income. In most cases, the individual farmer can escape only a small part of his costs by curtailing production; he would still be required to meet his taxes, interest, and other fixed costs and charges.

The administration of such a production control plan would involve many problems, partly due to the character of hog production and partly to the great variety of conditions under which production takes place. It involves bringing a substantial portion of around 4,500,000 hog producers, scattered over the entire country, under an organization for distribution of allotments, enforcement of contracts, and distribution of benefits. It also calls for the determination of county, township, and individual allotments from very inadequate information, and would require a large administrative machinery. The size of personnel and the cost of carrying out these provisions can not be determined even with approximate accuracy in advance of actual experience.



*The national emergency act.*—The latest version of the allotment plan is contained in the national emergency act (H. R. 13991) now before the Congress. The objective of this plan is to add to the prices received by producers of wheat, rice, cotton, peanuts, tobacco, butterfat, and hogs a supplemental amount, called "fair exchange allowance," which would give a total return per unit of the individual producer's "domestic consumption percentage" or allotment, that would equal pre-war exchange value in terms of prices paid for commodities bought by producers. In the case of hogs, to which this report is confined, "fair exchange value" is specified as 5 cents a pound in the initial marketing period; and 6 cents a pound beginning with the 1933-34 marketing year, plus one-half cent a pound for each 10 points of increase in the index number for factory employment as published by the Federal Reserve Board, until pre-war purchasing power of hogs is reached. The difference between the "fair exchange value" and the average price of hogs at local markets would be paid to producers as a supplemental amount called "fair exchange allowance." It would be paid out of a fund collected by an excise tax on hogs slaughtered for domestic consumption. The tax rate would be the difference between the price of hogs at local markets and an amount varying from 3.5 cents per pound during the first part of the initial marketing period to 6 cents or more, up to an amount that would equal pre-war purchasing power of hogs.

Adjustment certificates would be issued to individual producers only upon application, accompanied by proof satisfactory to the Secretary of Agriculture that the tonnage of hogs marketed by them is 20 per cent below that of the period considered as normal for the area. Moreover, in order to get the benefits of the plan in the 1933-34 marketing year, individual producers of hogs who also produce corn would be required to reduce their corn acreage in 1933 by 20 per cent. In addition, they would be required not to increase their production of dairy products for sale over the preceding year; not to produce on the acreage withdrawn from corn production "any commodity of which, in the opinion of the Secretary of Agriculture, there is normally produced or is likely to be produced an exportable surplus."

A large force would be required to administer this plan depending in part on how many of the Nation's 4,500,000 producers of hogs elect to come under it. If affidavits as to production in previous years were accepted as ample evidence in determining allotments, it would greatly reduce the necessary administrative machinery, but the acceptance of such affidavits without some system of checking their accuracy would afford wide opportunity for evasion and error. On the other hand, if the affidavits as to production were checked, allotments would be made more accurately and production might be controlled more effectively, but this would require a large and costly administrative organization.

Many of these producers also produce corn and dairy products and are located in areas suited for the production of one or more of the commodities of which "there is normally produced or is likely to be produced an exportable surplus." Assuming reasonably complete enforcement of these provisions, it is inevitable that individual producers of hogs, in order to participate in the plan, would be subjected to a large amount of governmental regulation as to what and how much to produce for market. These requirements and regulations



probably would cause many producers not to avail themselves of the plan.

The plan in effect provides for a minimum per-unit cost of hogs to processors for that quantity of hog products consumed domestically. This cost would consist of a base price plus a tax, which together would equal the "fair exchange value" as defined in the bill.

It might be assumed that the price to producers of hogs would not be depressed materially, if at all, by the tax levied on slaughterers below what the price would be if the plan were not in operation. The supposed reason is that there would be no incentive for the slaughterer to offer a lower price for hogs, as in doing so he would have to pay a higher tax in order to maintain the "fair exchange value" of the commodity. This assumption, however, appears untenable.

The "fair exchange value," which would be in effect a minimum cost to processors of hogs slaughtered for domestic consumption, would greatly curtail the amount of hog products consumed, especially at the present level of consumer buying power and present prices of substitutes. If hog prices should remain at about the level that would prevail if the plan were not in operation, the supply of hogs that would come to market would exceed the quantity that would be consumed in this country, even if the plan succeeded in curtailing production materially. The excess supplies could be disposed of in foreign markets, only at prices below the prices that would be received for the amount exported if the plan were not in operation. This, in turn, would cause the domestic price of hogs to fall to a level corresponding to the low price of the increased exports.

It would be impossible, therefore, to prevent hog prices from being depressed as a result of the tax, regardless of whether processors would prefer to pay a higher price and a small tax or a lower price and a larger tax in maintaining the "fair exchange value" of hogs. During the World War a definite level of hog prices was successfully maintained, but this was accomplished with unprecedented war demand including vast purchases of hog products by the United States Government and by the Allies.

The base price of hogs to producers, therefore, would be governed in the long run by the prices received for United States hog products in foreign markets. If the supply of hog products in excess of the quantity that would move into domestic consumption at the minimum cost could not be disposed of in foreign markets, there would be no sale for some of the hogs in areas most distant from the centers of consumption. Unless demand conditions should improve materially, the exportable surplus in 1933-34, under the operation of this plan, would exceed the present exports even though production were reduced 20 per cent. Foreign restrictions now in effect and under consideration may put further limitations on exports of United States hog products.

The reduction in hog production under the operations of the plan probably would be much less than anticipated, for several reasons which include: (1) The provisions for tax exemption on the sale of hog products by producers; (2) the difficulties that would be encountered by producers in meeting the requirements for securing the benefits; and (3) the possibilities of error and evasion in ascertaining actual production of individuals.

## PART I

### THE PRESENT HOG SITUATION

The general trend of hog prices since 1929 has been sharply downward and prices now (the beginning of 1933) are at the lowest levels that have obtained in more than 50 years. The gross income from hogs in 1932, totaling about \$520,000,000, was approximately only one-third that received in 1929. During the three years (1930, 1931, and 1932) in which hog prices have fallen more than 60 per cent, prices of commodities that farmers buy have declined only 30 per cent; consequently the exchange value of hogs is only about one-half that of three years ago. This drastic decline in hog prices has not been due to increased hog production. Slaughter supplies of hogs during the marketing year ended September 30, 1932, were nearly 5 per cent smaller than slaughter supplies in the year ended September 30, 1929, and were only about 3 per cent larger than the average of the six years, 1924-25 to 1929-30. Excluding the year 1925-26, the year-to-year changes in hog production during the last eight years have been moderate, and total yearly income from hog production did not change materially until the business depression began, late in 1929. The yearly changes in slaughter, total live weight, price, and total amount paid for hogs during the period, are shown in the following table:

*Number, total live weight, and amount paid for hogs slaughtered under Federal inspection, 1925-1932*

Year ended Sept. 30	Number slaugh- tered	Total live weight	Average price per 100 pounds, live weight	Total amount paid for hogs slaugh- tered
	<i>Thou- sands</i>	<i>Million pounds</i>		<i>Million dollars</i>
1925.....	46,289	10,258	\$11.18	1,147
1926.....	41,150	9,776	12.29	1,201
1927.....	43,090	10,009	10.71	1,072
1928.....	47,370	10,823	9.24	1,000
1929.....	48,957	11,321	10.03	1,136
1930.....	45,542	10,530	9.58	1,008
1931.....	43,559	10,200	7.21	735
1932.....	46,655	10,624	4.05	430

These price trends reflect a serious economic situation among hog producers, but their situation is not greatly different from that of producers of other agricultural products. (Fig. 1.) Comparing farm



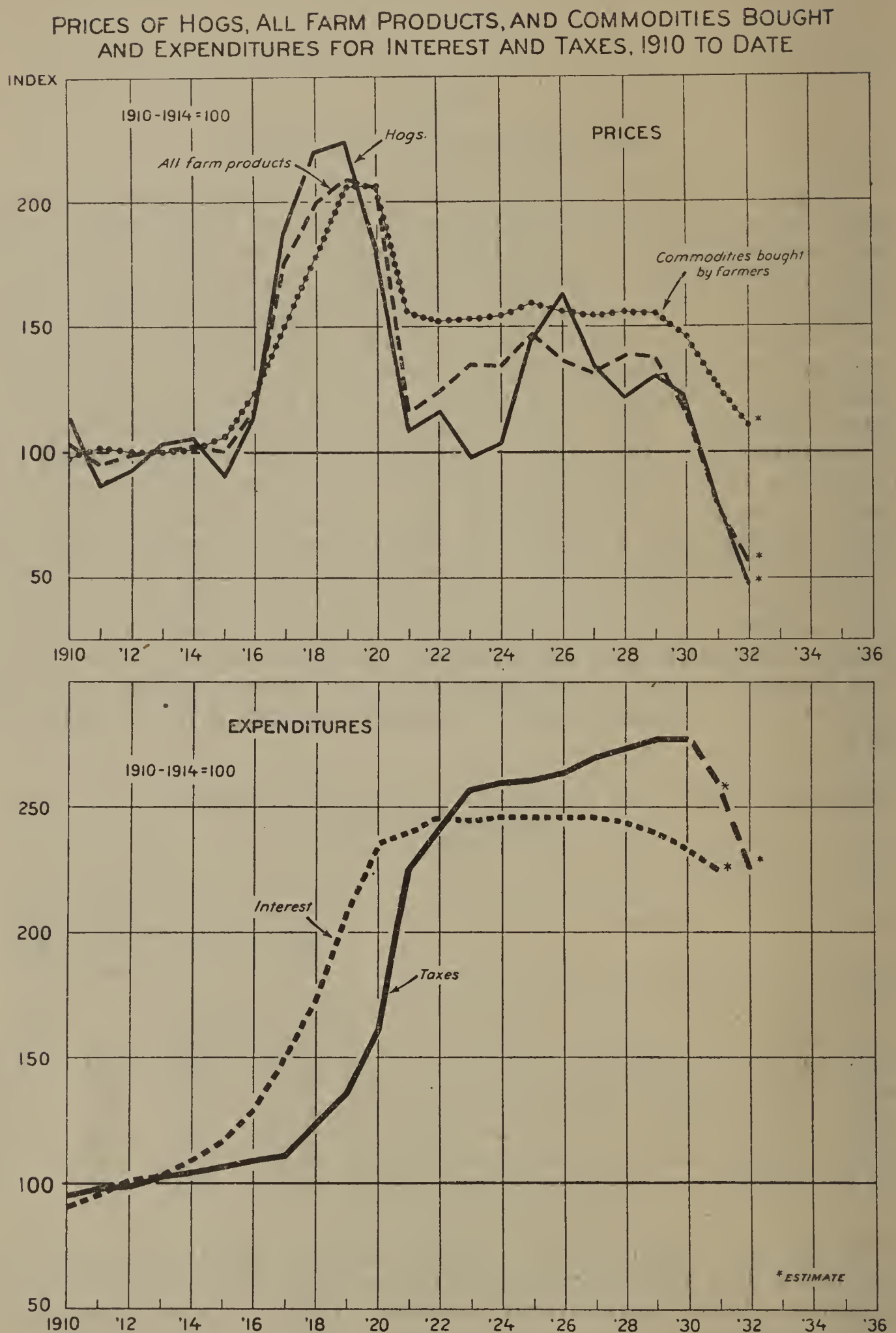


FIGURE 1.—Hog prices have been low, relative to prices of commodities bought by farmers, during most of the period since the World War. Although prices of commodities bought by farmers have declined somewhat during the last three years, the decline in hog prices during this period has been much greater. In addition to this disparity, fixed charges, such as interest and taxes, since 1921 have been more than twice as great as in the pre-war period. The present economic situation of hog producers is not greatly different from that of producers of other agricultural products

prices of January, 1933, with those of January, 1930, it becomes evident that reductions occurred approximately as follows: Hogs, 70 per cent; beef cattle, 62 per cent; lambs, 63 per cent; sheep, 70 per cent; dairy products, 50 per cent; fruits and vegetables, 65 per cent; wheat, 69 per cent; corn, 75 per cent; cotton, 65 per cent; poultry, 53 per cent.

Gross income from farm production during 1932 was about 60 per cent less than during 1929. Between 1921 and 1929, the exchange value of farm commodities was below the pre-war level, with a somewhat diminishing disparity. During the last three years it declined sharply and is now only about half the exchange value that prevailed from 1910 to 1914.

The hog industry is of major importance in the agriculture of the United States. Gross income from hogs constitutes about 13 per cent of the gross agricultural income of the Nation. Hogs usually rank second only to dairy products as a source of this income. In Iowa, where about one-fourth of the Nation's hog supply is produced, the income from hogs usually constitutes about 40 per cent of the total from all agricultural products in that State. Hogs provide an outlet for about one-half of the corn produced in the United States. Although 90 per cent of the commercial hog supply comes from the North Central (Corn Belt) States, hogs are produced in all sections of the country. Pork and lard are the only livestock products exported from the United States in significant quantities.

The marked decline in hog prices and in the total returns from hogs during the last three years has been due almost entirely to the great reduction in consumer incomes at home and abroad, which reduction has been associated with the rapid decline in the general price level and the sharp curtailment in business activity. The low level of consumer demand is the most significant feature in the present hog situation. Total consumer income in the United States during 1932 was only about half as large as in 1929, and was far below that of any other post-war year. It is estimated that nearly one-third of the persons who were gainfully employed in industries other than agriculture in 1929 are now unemployed.

Notwithstanding the marked reductions in total consumer expenditures for pork and lard and the great decline in hog prices during the last three years, the margins taken by wholesalers and retailers when distributing hog products have been reduced comparatively little. Likewise, the cost of marketing hogs from the farm to the packer since 1929 has been reduced only slightly. Meat distribution costs (comprising largely wages, transportation costs, rent, and taxes) were increased greatly during the period of war inflation and the increases have since been largely maintained. The margin between the market value of 100 pounds of live hog at Chicago and the retail value in New York City of the principal hog products (75 per cent of the carcass) obtained from this weight of hog, averaged \$5.08 during the six years 1924-1929. During 1932, this margin averaged \$4.79, or 5.7 per cent less than during the earlier period. Hog prices in 1932 averaged nearly 60 per cent below the hog price level of the 1924-1929 period.

Because of the higher costs of distribution as compared with those of pre-war years, the proportion of the money spent by consumers for pork and lard from 1921 to 1929 that went to hog producers was much smaller than before the World War. With but little decrease in dis-



tributing and handling charges since the depression began, the proportion of consumer expenditures for these products which now goes to hog producers is the smallest on record. This fact accounts in part for the great reduction in total income to farmers from hog production during recent years.

Taxes, interest, and other fixed costs in agricultural production have not declined in proportion to the reduction in the income from hogs and agriculture generally. As shown in Figure 1, taxes on farm property rose sharply during and immediately following the World War, advanced gradually until 1929, declined slightly in the following year, and then fell sharply until in 1932 taxes on farm real estate in the United States averaged about 20 per cent lower than in 1929, according to preliminary estimates by the Bureau of Agricultural Economics. The farm-mortgage debt has declined somewhat since 1928, owing largely to foreclosures and to the voluntary surrender of farm properties, but in 1932 it amounted to nearly one-fourth the total value of farm real estate; and about 40 per cent of the cash farm income was required to pay carrying charges of such debts. In December, 1929, it required about 5 hogs averaging 225 pounds in weight to pay \$100 of Iowa taxes, or an equal amount of interest or principal on an Iowa farm mortgage, but in December, 1932, it required approximately 18 hogs of the same average weight to pay that amount.

Mention already has been made of the fact that the reduction in consumer income abroad has been a contributing cause to the decline in hog prices in this country. The foreign demand for American hog products has been affected also by greatly increased hog production in important European hog-producing countries. Hog production in Denmark, Germany, and other continental countries has increased greatly since the World War, and hog marketings in Europe during the last two years have been the largest on record. With those countries supplying an increasing share of foreign pork and lard requirements, especially pork, United States products have met increasing competition abroad, and exports of pork and lard have decreased steadily during the last eight years as European hog production has expanded. Increased tariffs, limited import quotas, limitations on foreign exchange, and other governmental regulations adopted during the last two years have tended further to retard the export movement of United States pork and lard. Total exports of pork and lard during 1932 were the smallest in 50 years, constituting slightly less than 6 per cent of the total pork and lard production compared with an average of about 14.5 per cent of the total production during the 5-year period, 1921 to 1925.

Hog production in the United States has moved through two complete cycles since 1920 but the magnitude of the first cycle was much greater than that of the second. Production (as indicated by the yearly pig crops) increased during 1921 and 1922 to the highest level on record, and then declined sharply from 1923 to 1925. The second cycle got under way in 1926, reached its peak in 1927, and ended in 1930. Increases in both the spring and the fall pig crops of 1931 indicated that another cycle was beginning, but the expansion in production was checked during the spring of 1932 as a result of the short corn crop in the western Corn Belt during 1931 and very unfavorable weather at farrowing time in the more important pro-



ducing areas. The 1932 spring pig crop, which is now being marketed, was 7 per cent smaller than the spring crop of 1931.

Despite the low level of hog prices during 1932, corn prices were even lower. The relationship between hog prices and corn prices over most of the year, therefore, was such as to encourage hog production. According to estimates of the United States Department of Agriculture, the 1932 fall pig crop was about 4 per cent larger than the fall crop of 1931. But because of the decrease in the spring pig crop the total crop for the year 1932 was 3 per cent smaller than that of the previous year.

The number of sows to farrow in the spring of 1933, based upon breeding intentions reported to the United States Department of Agriculture on or about December 1, 1932, is estimated as 2 per cent larger than the number that farrowed in the spring of 1932. The size of the 1933 spring pig crop, however, will depend also upon the number of pigs saved per litter. In the spring of 1932, the number saved per litter was relatively small.

Breeding intentions reported by hog producers in most of the western Corn Belt States seem low in view of the large corn crop and low prices of corn in these States, and the high ratio of hog prices to corn prices and the greatly reduced pig crops in some of these States in 1932. Ordinarily, such conditions would result in a very marked expansion in hog production. It is possible, however, that the reactions of producers under present conditions will be different from what they would be under more normal conditions, since hog prices during recent months have been much below any prices ever before experienced by most hog raisers now in the business.

If the 1933 spring pig crop is increased only to about the extent shown by the estimate of sows to farrow, the number of hogs for slaughter in this country during 1933 and early 1934 will not be materially different from the average of the corresponding periods since 1930.

Hog-production cycles in most foreign countries turned definitely downward during 1932 and hog slaughter in those countries during 1933 and 1934 is expected to be smaller than that of 1932. The reduction in foreign production, however, is not likely to result in an increase in United States exports of hog products equal to the increase in exports that similar reductions have brought in the past, if the higher tariff duties and other trade barriers recently adopted in several importing countries remain in force.

## PART II

### ECONOMIC CHARACTERISTICS OF THE HOG INDUSTRY AND MAJOR DEVELOPMENTS SINCE THE WORLD WAR

Certain economic characteristics of the hog industry should be considered when appraising the probable effectiveness of plans for alleviating the present unfavorable situation in the industry. These are: (1) The price-making mechanism in the hog market, (2) the demand for hog products both in this country and abroad, and (3) the nature of domestic hog production and the factors that govern this production.

#### HOW HOG PRICES ARE DETERMINED

In general, it may be said that the prices of hogs, like the prices of other commodities, are determined by supply and demand conditions, but that certain characteristics of these two factors as they relate to hogs and hog products cause the hog-price mechanism to operate somewhat differently from that of many other commodities. These are: (1) The seasonal nature of hog production and marketing which causes hog-slaughter supplies to be relatively large in certain seasons and small in others; (2) the relatively uniform consumption of hog products throughout the year, notwithstanding the wide seasonal variations in slaughter; (3) the perishability of hog products which imposes certain limits on storage and holding operations; and (4) the risk factor which must be assumed by those engaged in the processing and storing of these products.

The physical operation of the industry is from the animal, through the packing house, to the wholesale market and into the retail market, but the price-determining movement is the reverse—from the retail market to the wholesale market, and from the latter to the packing plant, and into the livestock market to the animal. Since the amount paid for the raw material (live hogs) is such a large part of the final proceeds of sale of the finished article, the relationship between the two is fairly close, and changes in the price of the finished product are reflected back into the raw material market within a relatively short period of time.

The supply of hogs marketed during a given year in every case represents the approximate supply produced and not the quantity of hog products that can be moved at a particular price. The perishability of hogs and hog products, together with the speculative risks involved in storage operations, makes only limited holding possible. The hog crop produced in a given year must be marketed largely within a period of 12 months, and the stocks of hog products accumulated in a particular storage season must also be moved into consumption before the next storage season begins. The factors that cause yearly variations in hog production are discussed in detail elsewhere in this report.

The immediate demand for hogs is found in the hog markets, where the buyers of hogs and the supply of hogs meet. This demand



is not for something to be consumed by these buyers; it is for a raw material that goes by different stages to the actual consumer, who is the buyer of meats and processed by-products. The ultimate demand then is the demand of consumers for the products of hog slaughter. Later in this report it will be shown that consumer demand is governed largely by the level of consumer income.

The actual meeting place of consumer demand and the bulk of the supply, which is meat, is at the retail counter or at hotel and restaurant tables. The effective or organized meeting place is in the wholesale meat markets of all kinds where sales are made to retailers and to buyers for many hotels and restaurants. Here the retail buyers, who represent consumer demand, and the wholesale salesmen, who represent hog supplies, do the bargaining that determines directly the price of hogs for slaughter and indirectly the price of all hogs.

The conditions under which hogs are produced and the competition that exists in the wholesale markets cause packers to take all offerings. If any particular group of packers refrains from buying hogs for even a short period, the competitors of that group gain an advantage through being able to buy hogs at lower prices, and thus being in position to undersell in the wholesale market. The packers have no control over the number of hogs marketed within a yearly period, and if it happens that current supplies can not be moved into consumptive channels at going prices, the usual procedure is to reduce prices to levels at which the supplies can be moved. In general, packers move a quantity into consumptive channels each month that is about the equivalent of the quantity of products derived from slaughter during the month. Exceptions occur during the winter months when products are being accumulated, at which time products distributed will be smaller than products produced, and during the summer months when surplus products are being disposed of and the products being distributed are in excess of the products produced.

The seasonal character of hog production is due to the fact that about two-thirds of the yearly production of pigs are farrowed in the spring (before June 1). Most of the remainder are farrowed in the fall. These seasonal characteristics are reflected in the movement of hogs to market because hogs usually are ready for slaughter within 6 to 10 months after they are farrowed, especially those produced in the surplus area. The hog-crop marketing year, therefore, does not coincide with the calendar year. It is probable that September 15 most nearly represents the date of the beginning of the shift from an old-crop to a new-crop basis, but as it is an inconvenient date from the standpoint of keeping records, and as the September supply includes more old-crop hogs than new-crop hogs, October 1, is more commonly accepted as the date on which the new marketing year begins.

The marketing period for the spring-pig crop extends largely from mid September of the year the pigs are farrowed to April of the following year. Federally inspected slaughter during the seven months, October to April, inclusive, normally represents about 64 per cent of the yearly total. The fall-pig crop is marketed from late March to some time in October in the year following the season in which the pigs were farrowed. The bulk of the fall crop moves from May to September, inclusive, and inspected slaughter during these 5 months represents about 36 per cent of the 12-month total.



The seasonal character of hog production and marketing also is reflected in pronounced seasonal variations in weights, and to a lesser extent in seasonal changes in the proportions of the different classes of hogs found in the slaughter supply. Average weights are lightest in late November, at which time market supplies consist very largely of new-crop hogs (those farrowed in the previous spring). Weights increase steadily through the winter until about the middle of March, because as the season advances the feeding period is lengthened. Furthermore, considerable numbers of sows that farrowed pigs in the previous fall are marketed during the late winter, and these are older and heavier than are the other hogs marketed at that time. Weights decline moderately during late March and early April as arrivals of fall pigs begin to appear in market receipts, but from early April to the beginning of June weights increase slightly, and after June they increase sharply to the middle of August. The rise in weights during the summer is due not only to the lengthening of the feeding period of the fall pigs that are marketed during this time but also to the fact that the summer supply of hogs includes a large proportion of sows and gilts that were kept to farrow in the spring. After mid August, weights usually begin to decrease as a result of increasing numbers of new-crop hogs (pigs born the previous spring) in the supply, and from then until late November the trend is sharply downward as the proportion of these new-crop hogs increases.

As a result of the seasonal changes in numbers and weights of hogs slaughtered, about 63 per cent of the yearly commercial production of hog products comes from the hogs slaughtered from October to April, inclusive. Domestic consumption during this 7-month period, however, represents only 58 per cent, or seven-twelfths, of the yearly consumption. It is during this period, therefore, that hog products are accumulated to furnish needed supplies during the season when supplies of slaughter hogs are relatively scarce, that is, the summer and early fall. Most of this accumulation is done during the four months November to February, inclusive.

The greater part of a hog carcass goes into processed products, the parts ordinarily sold as fresh meat constituting less than 20 per cent of the whole. Although processed products can be held in storage for a considerable period of time without deterioration in quality, and large quantities of fresh pork are frozen and carried from winter to the spring and summer, then to be processed and sold or sold unprocessed, the cost of carrying products in storage and the financial risk involved in carrying them into or through another period of accumulation make it imperative that stocks be moved into consumption within a few months after they are produced. In this connection, it should be kept in mind that a very large part of the products that are reported at any one time as storage holdings actually represent products that are being processed and which, therefore, are not yet ready for movement into consumption.

Storage operations introduce a large element of risk and speculation in hog packing which is not existent in cattle and sheep slaughter, since practically all the beef and lamb and mutton are sold as fresh meat and go into immediate consumption. Risk and speculation enter into the pork business also by reason of the fact that the processing of hog products, regardless of surplus storage accumulation, takes a considerable period of time. The packer's yearly profit in his hog-



slaughter operations is involved to a considerable extent in the speculative carrying of surplus hog products from winter to summer. Hence, a comparatively low level of hog prices in the winter, together with a high level of product prices in the summer, is the most desired situation from his standpoint. This is also the usual situation, and operations are conducted on the assumption that usual conditions will prevail.

But only around 10 to 15 per cent of the winter production of hog products goes into surplus storage, and the equivalent of the other 85 to 90 per cent goes into current consumption. The level of current product prices during the winter, therefore, largely determines winter prices of hogs. The packers, however, influence somewhat these product prices through increasing or decreasing the quantity of products going into current consumption which is done by decreasing or increasing storage holdings.

#### DOMESTIC DEMAND FOR HOG PRODUCTS

The factors affecting the domestic demand for pork and lard are of major importance in the consideration of plans for alleviating the present unfavorable situation in the hog industry, because more than 90 per cent of the total volume of hog products produced in the United States go into domestic consumption. The objective of any such plan, in the final analysis, is to increase the total returns to hog producers. In order to accomplish this objective, two of the proposed relief measures—those involving the equalization fee and the export debenture—aim to raise domestic prices; the third, the domestic allotment plan, is designed to add to the market price a supplemental return (variously called a “bonus,” a “tariff benefit,” “fair exchange allowance,” or designated by some other term) on the “allotment” that represents the individual producer’s part of the domestic supply.

Whether the aim is to improve returns to the producers by price increase or by price supplement, an analysis of the relations between changes in domestic consumption of hog products on the one hand and the prices and total values of such products on the other is a basic element in the appraisal of the effectiveness of any of the three relief plans. Because of the complexity of these relationships, it is inevitable that the analysis should appear somewhat technical despite effort to simplify the presentation as much as possible.

The total amount of money spent by consumers for pork is governed largely by the level of consumer incomes. This is indicated by the close relation between the total retail value of pork consumed and consumer incomes during the postwar period, as shown in Figure 2. The trends of consumer incomes and of consumer expenditures for pork were upward from 1921 to 1929. Since 1929 sharp reductions in both have occurred. The declines from 1929 to 1931 were about 30 per cent in consumer incomes and about 20 per cent in total retail value of pork consumed.<sup>1</sup>

The total amount which all consumers spend for pork is determined primarily by their total incomes and not by quantity of pork pro-

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<sup>1</sup> It may be observed that the retail value of the pork consumed has not changed as much as consumer incomes in the years represented in Figure 2. This is due to the fact that pork is a staple commodity in the consumer’s budget and, as incomes are reduced or increased, the changes in the purchases of some other articles are greater than in the purchases of pork. As incomes are reduced, the amounts expended for luxury and semiluxury items are reduced, thus leaving a greater share of income to be expended for the staple or necessary items in the consumer’s budget.



duced or offered for sale. In other words, in a period when the consumer's income remains about the same, large quantities and small quantities of pork sell for about the same amount. To illustrate, the quantities of pork available for consumption increased materially from 1926 to 1929. The price per pound declined but the total value increased as consumer incomes increased. In fact, throughout all the years from 1925 to 1929, the retail value, adjusted by changes in consumer income, remained quite constant. Stated in another way, in any year the amount that consumers spend for pork products is determined by their income, and the price of pork will be that income divided by the quantities available for consumption; or large quantities will sell for the same amount as small quantities.

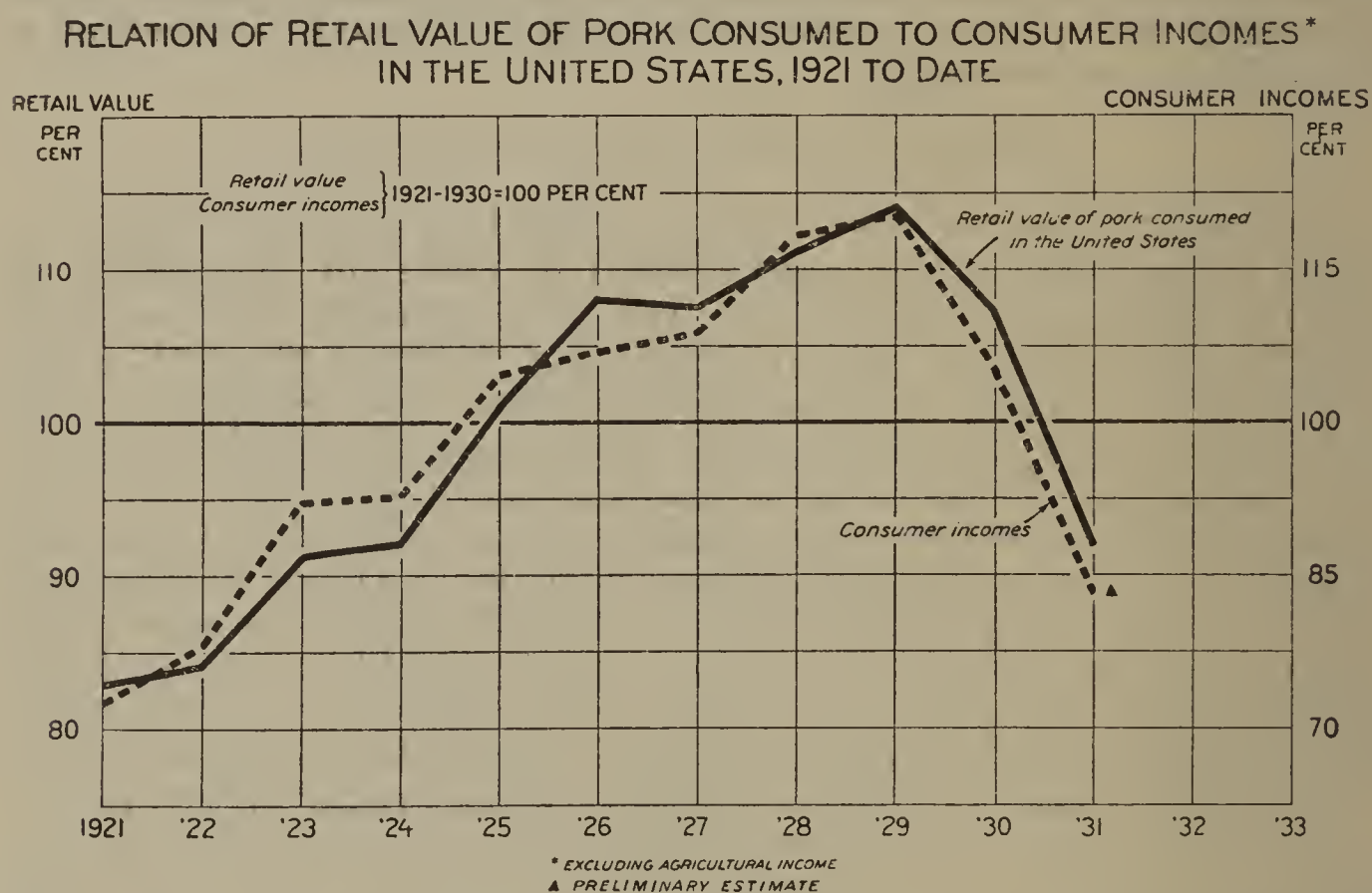


FIGURE 2.—Total consumer expenditures for pork apparently are determined largely by the level of consumer incomes. Consumer expenditures for a large supply of pork are about the same as for a small supply if consumer incomes remain constant. The decline in consumer incomes during 1930 and 1931 resulted in the sharp reduction in the retail value of pork consumed

In a business depression consumer incomes are reduced and this reduces the aggregate amount consumers spend for pork. Consequently, prices decline unless the supply of pork is reduced more rapidly than the consumer income is reduced. That is, the price of pork may be maintained by a very great curtailment in supply, but the total value of pork sold can not be maintained by reducing the supply. In other words, when income has fallen to a low level, consumers will spend a larger share of that income for pork, but they will spend the same amount for large quantities as for small quantities.

The following table shows the trends of consumption, total retail values, retail prices of pork, and consumer incomes in the United States from 1921 to 1931, expressed in index numbers based on the average for the period 1921-1930. Prices and values adjusted for changes in consumer incomes also are shown. These adjustments in prices and values were made to indicate roughly the prices and

values that would have prevailed if consumer incomes had been equal to the 1921-1930 average during every year in the entire period. The significant fact is that the adjusted retail values are approximately the same from year to year, the change in consumption being offset by the change in retail prices.

In 1931 consumer incomes were about 18 per cent below the 10-year average and pork consumption was 7 per cent larger, but retail prices were 14 per cent lower. If consumer incomes in 1931 had been equal to the average for the period, prices probably would have been only about 8 per cent below the 10-year average. Stating this another way, if consumer incomes had been about the same in 1931 as in 1929, the retail price of pork consumed in 1931 would have been 6 per cent higher than the average price from 1921 to 1930 and slightly higher than the average in 1929. It may be noted in the table that there is considerable difference between the actual and the adjusted prices and values. These differences are largely the result of changes in consumer incomes.

*Consumption, retail prices, and retail values of pork, and consumer incomes in the United States, 1921-1931*

[1921-1930=100]

Calendar year	Con- sump- tion	Actual retail price	Actual retail value	Adjusted retail price <sup>1</sup>	Adjusted retail value <sup>2</sup>	Con- sumer incomes <sup>3</sup>
1921.....	85.2	97.5	83.0	117.6	100.2	72.4
1922.....	89.8	93.8	84.1	111.2	99.9	78.2
1923.....	103.2	88.7	91.4	97.0	100.1	92.2
1924.....	105.1	87.7	92.1	95.0	100.0	92.8
1925.....	96.4	104.9	101.0	103.8	100.0	104.7
1926.....	95.1	113.7	108.1	105.4	100.2	107.1
1927.....	100.5	107.2	107.6	99.6	100.1	108.7
1928.....	109.7	101.6	111.4	91.0	99.8	118.4
1929.....	109.3	104.4	114.0	91.6	100.1	120.4
1930.....	105.7	101.6	107.3	94.5	99.9	105.0
1931.....	106.9	86.1	91.9	93.4	99.8	<sup>4</sup> 83.5

<sup>1</sup> Adjusted for changes in consumer incomes. Based on studies made by the U. S. Department of Agriculture of the principal factors affecting retail prices of hog products.

<sup>2</sup> Adjusted index of price multiplied by index of consumption.

<sup>3</sup> Derived from gross incomes of corporations. See Table 9, Appendix B.

<sup>4</sup> Preliminary estimate.

The supply of other meats also exerts some influence on the domestic demand for pork although it is of much less importance in this respect than are consumer incomes. Of the various competing meats, beef is the most important. During the 10 years, 1922 to 1931, the annual domestic consumption of pork averaged 70.3 pounds per capita. Yearly per capita consumption of beef during that period averaged 57 pounds and that of veal averaged 7.5 pounds. Consumption of lamb and mutton increased greatly from 1922 to 1931 as a result of a marked expansion of the sheep industry in this country but it still represents only a small proportion of total domestic meat consumption. The yearly average consumption during the 10-year period was 5.7 pounds per capita. Because of the interchangeability of fresh pork and beef in the American consumer's diet increased supplies of beef tend to cause pork prices to decline, but compared with the influence of consumer incomes, and of the supply of pork, competition from beef is a minor factor affecting pork prices.



Since pork is the chief hog product, the effect of changes in domestic demand on the hog situation is reflected largely through the changes in demand for pork. Nevertheless, changes in the domestic demand for lard are of considerable importance to the hog industry, because lard represents about 20 per cent of total weight of edible hog products produced and represents from 10 to 15 per cent of the total retail value of such products.

The major factors affecting total consumer expenditures for lard during the last decade have been consumer incomes, the supply of lard, and competition from other oils and fats. It has been pointed out that under similar demand conditions, total consumer expenditures for pork tend to be about the same regardless of the quantity consumed. In the case of lard, however, total expenditures for the product tend to be less when a large quantity is consumed than when the quantity consumed is small.

Thus, under fairly stable demand conditions, a change in the retail price of lard is accompanied by a relatively smaller change in consumption. For example, a change in price of 5 per cent is associated with a change in consumption of about 5 per cent in the case of pork, but around 8 per cent in the case of lard. The difference between the demand for pork and that for lard is shown in Figure 3. Consumption, as indicated by the scale along the base of the chart, and price, as measured on the vertical scale, are expressed as a percentage of the 10-year average for both products. The average relations between consumption and price during the period are indicated by the diagonal curves. It may be observed that as consumption increases the change in price is greater in the case of lard than in the case of pork.

This difference in the relationships of consumption and price of the two products is due largely to the difference in their uses. The consumption of pork can be changed much more readily than can that of lard. Lard is used largely as a shortening agent and a cooking fat, and its utilization is dependent largely on the consumption of other foods of which it is a constituent. Consumers can not utilize materially larger quantities without replacing other fats and oils used for the same purpose. An increase in the quantity of pork produced is usually accompanied not only by an increase in the production of lard but also by an increase in the fat content of pork. Much of the fat in pork is converted into cooking fat in the process of cooking the pork. Hence, an increase in the consumption of pork probably has a weakening influence on the demand for lard.

Since consumer expenditures for pork are about the same when consumption is large as when it is small, provided demand conditions remain constant, and since consumer expenditures for lard are less when a large supply is consumed, it would be expected that total consumer expenditures for pork and lard combined would tend to decrease slightly when consumption increases. Because of the predominance of pork, however, total expenditures for the two products show but little tendency to vary with consumption.

Another important factor affecting the demand for lard during recent years which has had little or no influence on the demand for pork has been the increased competition from other edible oils and fats. Both the domestic and the foreign production of nearly all fats and oils were at an extremely low level at the end of the World War, but production was soon expanded and the world fats-and-oils



situation during the last decade was transformed from one of extreme scarcity to one of burdensome surplus. Some expansion in the proportion of fats and oils used for food purposes also has occurred owing to improvements in refining and processing. Most of the direct competition of this increased production and utilization of vegetable oils in the United States has been through the increased utilization and consumption of cottonseed oil. This oil usually represents from 80 to 90 per cent of the total materials used in the production of lard substitutes. The production of cottonseed oil and of lard substitutes increased sharply from 1920 to 1926, but the trend has been fairly stable since 1926. Prices of lard substitutes are very closely related to lard prices; they tend to go up or down together.

PORK AND LARD: RELATION OF RETAIL PRICES TO CONSUMPTION  
IN THE UNITED STATES, 1921-1931

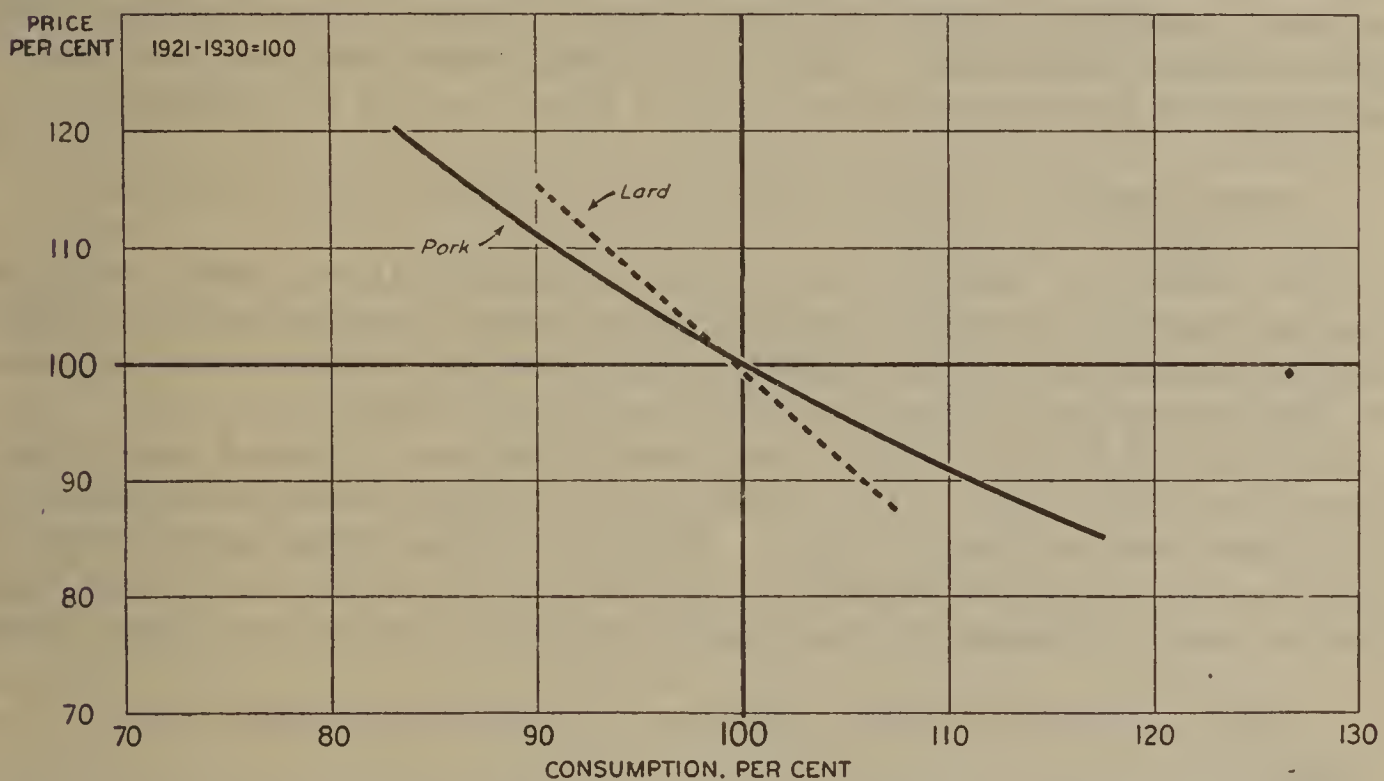


FIGURE 3.—The curves in the above figure show the average relationships between retail prices and consumption for pork and lard from 1921 to 1931, after adjustments have been made for shifts in demand. The difference in the consumption-price relationship for the two products is indicated by the difference in the slopes of the two curves. It will be observed that under fairly stable demand conditions a given change in pork consumption is accompanied by an approximately proportional change in retail pork prices. On the other hand, a change in lard consumption is associated with a relatively greater change in retail lard prices.

Although changes in hog prices are determined by changes in retail prices of pork and lard, and the consumption of pork and lard is determined largely by the total dressed weight of hogs slaughtered, the relationship between hog prices and slaughter supplies of hogs during the last decade has been somewhat different from the relationship between price and consumption of pork and lard just described. Some of the charges for marketing, processing, and distributing per unit have tended to remain fairly constant regardless of supply. Thus, the variations in the spread between the farm price of hogs per 100 pounds and the retail value of the salable products obtained from 100 pounds of live hog have been relatively less than the variations in supply, and, as a result, total charges for distributing the products have increased as supplies have increased. Because of this fact, total returns to producers for a large supply have been less than total returns for a small supply under similar demand conditions, even

though consumers have spent about the same amount of money for both.

If supplies were reduced permanently, however, the relation of total consumer expenditures to the supply consumed that has prevailed during recent years might not continue. The quantity of hog products available for consumption seldom has been either excessive or greatly deficient for more than two years in succession; thus it might be assumed that during years of very small supplies, with consumers accustomed to a higher level of pork consumption, they have been willing to make the same total expenditure for the small supply as they have during other years for larger supplies. But if supplies should remain much smaller than the average of recent years, the production of substitute products would be encouraged and a permanent shift in dietary habits would occur. Changes in supplies of the substitute products would then affect the demand for hog products and hog prices would be brought more nearly in line with prices of the substitutes. This is an important consideration in the appraisal of relief plans that provide for a control of production.

#### THE FOREIGN OUTLET FOR UNITED STATES HOG PRODUCTS

The following brief survey of the United States export trade in hog products is deemed necessary to an understanding of the effects on the hog industry that might result from the adoption of any one of the three plans under consideration in this report.

Exports of United States hog products have trended downward since the World War. The trend has been downward for pork since 1919 and for lard since 1923. (Fig. 4.) This downward trend in exports has been due largely to a marked expansion in foreign hog production. Because of the relatively low yield of lard from hogs

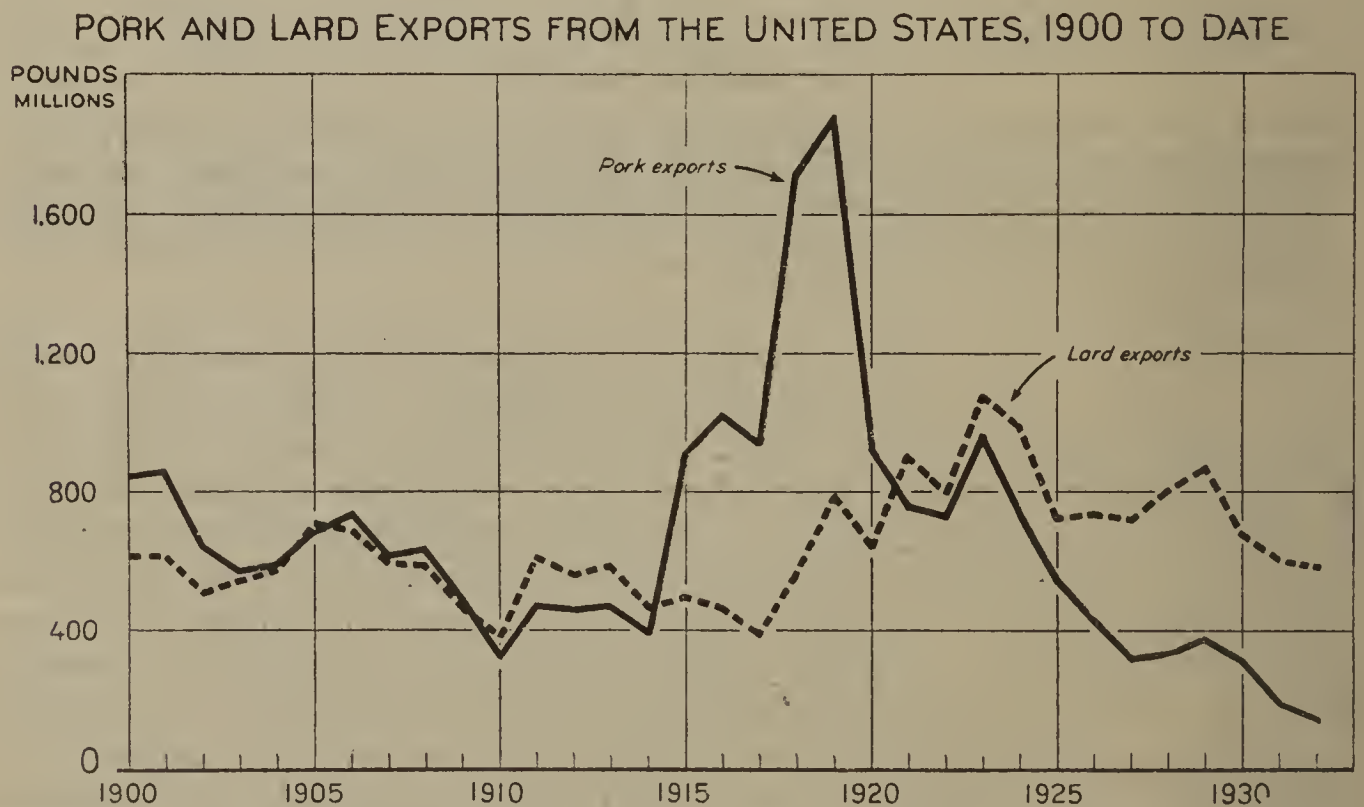


FIGURE 4.—From 1900 to 1914 the trend in the exports of pork and lard was downward, but about the same total quantities of each were exported. During the war period (1915-1919) both pork and lard exports were increased, but the increase was much greater in case of pork exports. During the last 10 years exports of pork have been sharply reduced, largely as a result of increased European hog production. The export movement of lard has been fairly well maintained, and in the last five years exports of lard have been much larger than those of pork.



produced in European countries, lard exports have not been affected so much as pork exports by the increased foreign hog production. The sharp decline in consumer incomes in foreign countries during the last three years also has reduced the foreign demand for American hog products.

World hog numbers in 1931 were estimated at about 269,000,000 head. (Fig. 5.) This number was about 5 per cent above the average for the five years 1921 to 1925, but about the same as the average for the years 1909-1913. About 30 per cent of the total number was in Europe,<sup>2</sup> 28 per cent in Asia,<sup>2</sup> 24 per cent in North America, and 10 per cent in South America. The remaining 8 per cent was distributed between Africa and Oceania. A large proportion of the hogs in North America and in Europe, however, are in countries where the hog industry is of great commercial importance, whereas the most in Asia and in South America are found in countries of very little importance in the international trade in hog products.

Most of the increased competition that the United States has encountered in its export trade in hog products, therefore, has been from European countries, notably Germany and Denmark. Although Germany has been, and still is, on an import basis for hog products, it ranks next to the United States as a commercial hog-producing country. Denmark produces a larger exportable surplus of pork than any other country in the world, and its exports constitute about two-thirds of its production. The Netherlands, Poland, Canada, the Baltic countries, and a few others, have been producing pork for international trade, but they have been of much less importance in such trade than is Denmark.

Hog slaughter in Germany was at a relatively high level immediately prior to the World War, but during the period from 1915 to 1919, slaughter in that country decreased materially, and in 1920 was only 17 per cent of the pre-war (1910-1914) level. Slaughter in Denmark also declined during the war years, but most of the decrease occurred in 1918 when slaughter in that country reached the low point of the war period. United States exports of hog products increased sharply during these years. This increase was largely due to the abnormal war demand, but the decline in hog production in some European countries was an important factor. The decreased slaughter supplies in Germany, however, did not constitute an important factor in this increased demand, since practically no pork or lard was exported to Germany from 1914 to 1918.

Since 1919, hog slaughter in Germany and Denmark has increased greatly and with few interruptions. During the last two years, slaughter in these countries was the largest on record. Hog production in Germany during the last 12 years has been gradually getting back to the pre-war level. The expansion in Denmark has not only carried production up to the level that prevailed prior to the war, but to a point far beyond all previous production peaks. (Fig. 6.) The marked expansion in Denmark has been associated closely with the developments of the dairy industry in that country. Hog production and dairying are very closely interrelated in Denmark because of the extensive use of skimmed milk in the hog ration. This marked expansion in European hog production accounts to a large

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<sup>2</sup> Russian territory excluded.



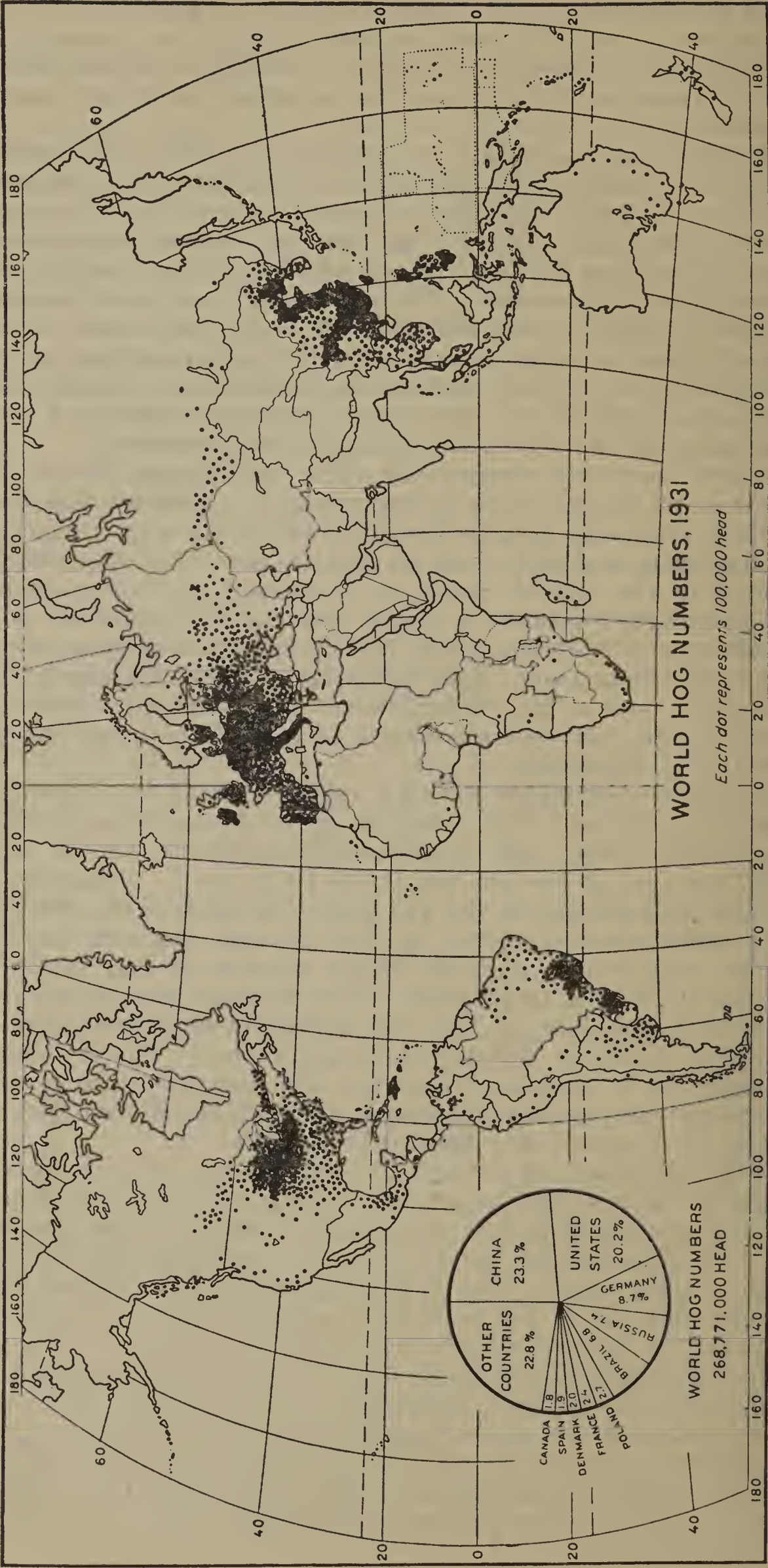


FIGURE 5.—The world hog population is located largely in the temperate zones. The centers of densest hog production are the Corn Belt of the United States, the potato, grain, and dairy regions of northern and central Europe, and China. Although China has the largest hog population of any country, hog production in that country is very largely for domestic consumption. The most important countries in the international trade for hog products are Denmark, United Kingdom, United States, Germany, Poland, and the Netherlands. Hogs are not numerous in most of the tropical and subtropical countries because of unfavorable production conditions, and because such countries are usually not densely populated and have available vegetable oils to supply the needed fats



degree for the sharp downward trend in exports of hog products from the United States during the postwar period.

Although the trend of hog production in Germany, Denmark, and several other foreign countries has been steadily upward during the postwar period, hog numbers in those countries have fluctuated in cycles of three or four years' duration. These production cycles, like those in the United States, have been due to cyclical changes in the relationship of hog prices to feed prices. Production in most foreign countries reached the peak of a cycle in 1931.

The consumption of vegetables and marine fats and oils during the postwar period has increased in European countries as well as in the United States. Net imports of edible fats, oils, and oleaginous raw materials into Germany and United Kingdom have trended upward

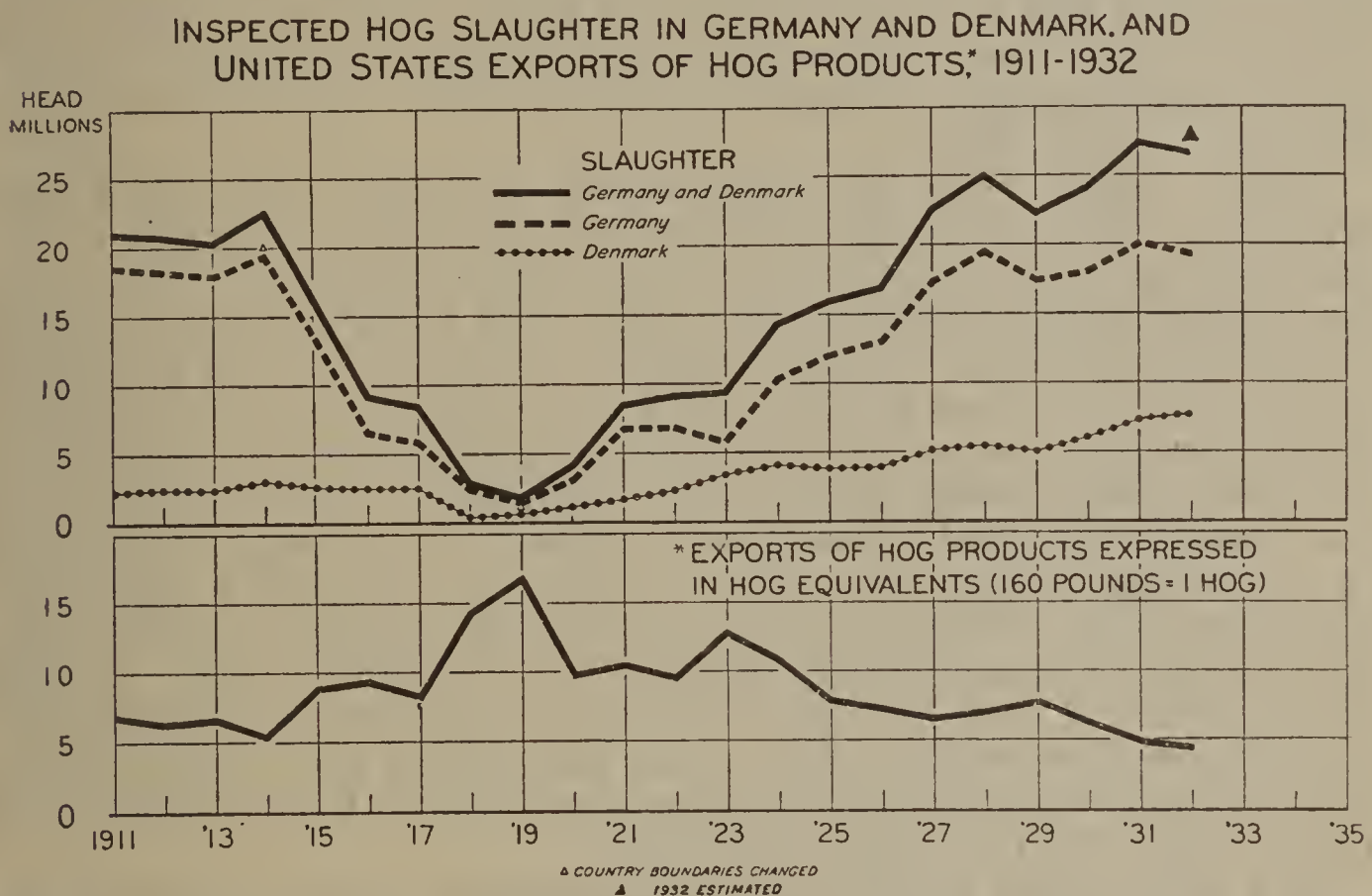


FIGURE 6.—The inverse relation between hog slaughter in Germany and Denmark, and United States exports of hog products, indicates effect of competition from European countries upon our export trade in hog products. Hog slaughter in Germany and Denmark was at a relatively high level just before the war, but during the war period, slaughter supplies decreased materially. Our exports increased sharply during war years, owing to the unusually strong demand in which decline in European hog production was a factor. Since 1920, hog slaughter in Germany and Denmark has increased greatly, and trend of our exports of hog products has been sharply downward

since 1920. (See Table 11, Appendix C.) Since the production of oleaginous raw materials is relatively small in these countries, net imports are probably a fairly satisfactory index of consumption. The fats-and-oils situation in the United Kingdom and Germany in many respects is apparently very similar to that in the United States. Some important differences in the developments in Europe and United States, however, should be noted. In this country, most of the increased consumption of fats and oils has been in vegetable oils, especially cottonseed oil, in the form of lard compounds and lard substitutes. On the other hand, in Europe a large part of the increase has been in marine oils, and has been used in butter substitutes to a greater extent than lard substitutes.

During the last 10 years, changes in the lard consumption and exports in the United States have been more in line with changes in



hog production in this country and in European countries than with changes in the production of other fats and oils. In the United Kingdom and Germany, lard consumption has been relatively stable despite the increased consumption of the "other fats and oils." Most of the effect of increased competition of vegetable and marine oils apparently has been to reduce the world level of lard prices rather than to affect the volume of lard in international trade.

UNITED STATES EXPORTS OF HOG PRODUCTS TO PRINCIPAL IMPORTING COUNTRIES

*United Kingdom.*—The United Kingdom is the most important customer of the United States for both pork and lard. Although the relative importance of the United Kingdom in our export trade of hog products has decreased somewhat during the last 30 years, that country took 45 per cent of the United States lard exports, 46 per cent of the bacon exports, and 78 per cent of the exports of hams and shoulders during 1931.

From 1900 to 1914, the trend of bacon imports into the United Kingdom from the United States was gradually downward, and although such imports increased materially during the war years, they have decreased sharply since 1918. In 1931, imports of United States bacon into the United Kingdom amounted to only 21,000,000 pounds, or 2 per cent of the total bacon imports into that country. Total imports of bacon into the United Kingdom, on the other hand, have increased greatly since 1920. Although most of the increase has been in takings of bacon from Denmark, our principal competitor in the British market, imports from other continental countries also have increased. The bacon imported into the United Kingdom from continental Europe is largely in the form of Wiltshire sides. A Wiltshire side is a half carcass with head, backbone, aitchbone, and shoulderbone removed. Most of the bacon from the United States is in the form of only the side of the carcass, thus it is not strictly comparable with the continental product.

The influence of Danish hog production upon our exports of hog products has been almost entirely in the form of competition for the British pork trade. British imports from Denmark and other European countries have increased greatly during the postwar period and, as a result, imports from the United States have been sharply reduced.

Denmark and other continental pork-exporting countries have an advantage over the United States because of the relative distance to the British market. Their proximity to the United Kingdom makes it possible for those countries to export bacon with only a mild cure at a relatively low cost. Wiltshire sides are shipped to the United Kingdom from continental Europe in a semicured state, and British importers are then able to adjust the final cure as the market desires it. Consumers in Great Britain prefer pork that is mildly cured. In the United States, the pork exporters' problem is much more difficult because of the longer distance to British markets. They have two alternatives in handling their shipments. A mildly cured product may be exported under low refrigeration with greater risks of spoilage and higher exporting costs; or a strong cure may be used which reduces transportation costs but which makes the pork less



desirable in the British markets. For many years the former method of exporting has predominated. Although most of the pork exported is cured only mildly, even that cure is stronger than is used in European exporting countries and is somewhat stronger than is desired by the bulk of the British trade.

Another factor favorable to Danish pork in the United Kingdom is that the British trade can depend upon an adequate supply of bacon of uniform quality. The British trade does not have the assurance of adequate supplies of American pork that it has in the case of Danish pork, and there has been little incentive to build up a demand for the American product through advertising or other means.

The trend of ham imports into the United Kingdom from the United States has been similar to that of bacon imports except that during the postwar years the proportionate reduction in takings of hams has not been so great as that of bacon. The United States provides most of the hams imported into the United Kingdom. From 1908 to 1923 an average of about 90 per cent of the ham imports into the United Kingdom originated in the United States, but since that time the proportion has gradually declined as imports from Canada and some of the continental countries have increased. Although most of the hams imported into the United Kingdom are from the United States and Canada, it must be kept in mind that the Danish product (Wiltshire sides) includes the ham and shoulder as well as the side of the carcass. American hams receive considerable competition from the Danish Wiltshire sides even though this competition is not so effective as in the case of bacon.

The trend of lard imports into the United Kingdom has been gradually upward since 1900, although there has been considerable variation from year to year, especially during the World War. The United States furnished most of the lard imported by the United Kingdom during this period, the proportion ranging from 78 to 97 per cent of the total. During the last 10 years, however, the proportion supplied by this country has been slightly smaller than it was just prior to the war. The Danish bacon hogs yield only a small quantity of lard compared with the yield of American lard-type hogs and the principal foreign outlet for Danish lard is in Germany. The quantities of Danish lard received in British markets, therefore, are negligible.

In contrast to the sharp reduction in imports of bacon and hams from the United States to the United Kingdom during the last decade, lard imports from the United States have been relatively stable, fluctuating slightly from year to year, but showing no distinct upward or downward trend.

The superior quality accredited to American lard by British consumers has doubtless aided in the maintenance of a fairly stable consumption of that product in the United Kingdom, even though it has been necessary also to reduce prices sharply. Furthermore, the British trade is assured of a uniform and adequate supply of American lard year after year, which also tends to give the United States a preferred position in the British lard markets, just as the same characteristic of Danish bacon gives Denmark an additional advantage in the bacon trade. The United States is the only country from which Great Britain can obtain uniform supplies of lard in the quan-



tities required. The upward trend in imports of vegetable and animal fats and oils, other than lard, into the United Kingdom has not been quite so marked as in Germany and the United States. This also may have been a factor in maintaining the export movement of lard to that country.

*Germany.*—Germany ranks next to the United Kingdom as a purchaser of American hog products although about one-third of the hog supplies of Europe (excluding Russia and Turkey) is produced in that country. Lard is the principal hog product exported from the United States to Germany. During 1931, lard exports to Germany constituted about 98 per cent of the total movement of hog products from the United States to that country, and they represented 23 per cent of our total lard exports. The United States supplies Germany with most of its imported lard, although since the World War an increasing proportion has been supplied by other countries, principally Netherlands and Denmark. Since 1920 the trend of lard imports has been sharply downward. This downward trend can be accounted for largely by the increase in hog production in Germany during the period, but the year-to-year fluctuations have been governed to some extent by production in the United States.

*Other countries.*—Cuba ranks third as a foreign market for United States hog products. Lard is by far the most important hog product imported into Cuba, and practically all of the lard is purchased from the United States. Cuban imports of United States lard are closely related to the financial returns from Cuban sugar production.

Canada is of some importance in the international trade for hog products. In addition to the direct trade between the United States and Canada for hogs and hog products, Canadian hog production has a further effect on our export trade because of the competition of Canadian hog products with those of the United States on the British market.

The Netherlands is usually on an export basis for most hog products, but some bacon and lard are exported each year to that country from the United States. A considerable portion of these exports are probably reexported to other European countries since ports in the Netherlands are important in the commerce of all western Europe. Although data on hog slaughter in the Netherlands are incomplete, there is considerable evidence to indicate that hog-production trends in that country have been similar to those in Germany and Denmark.

#### INTERNATIONAL TRADE RESTRICTIONS

New trade restrictions and increased tariff duties on pork and lard have been adopted in a number of importing countries during 1932. The duties imposed on bacon in the Irish Free State have eliminated almost entirely the American pork trade with that country. Import duties on lard in Germany were nearly doubled in July, 1932. Lard imports into Germany during the year also have been restricted by a marked reduction in the volume of foreign exchange available for purchasing lard. In March, 1932, the United Kingdom levied a 10 per cent ad valorem import duty on lard from nonempire countries. Increased duties on hog products also have been adopted in the Netherlands, Belgium, Cuba, Italy, Mexico, and several other countries during the year.



In addition to these restrictions, competition in the British pork market has been intensified by the adoption of relief measures to hog producers in several continental hog-producing countries. Export premiums on hog products are being paid in the Baltic countries and in Poland. This has tended to increase the quantity of cured pork entering British markets from these countries, but such supplies have represented only a small proportion of the total imports of pork into the United Kingdom. Since 1928, exporters of hogs and hog products in Germany have been given the privilege of importing duty free, or at reduced rates, certain specified quantities of feed stuffs.

At the request of the British Government, a temporary agreement between the various pork-exporting countries and the United Kingdom to limit the shipments of bacon and hams to British markets was adopted in November, 1932. The agreement provides for a limitation of imports of bacon and ham into the United Kingdom during the two months beginning November 23, 1932, to a level 15.3 per cent below the average imports of August to October, 1932. On this basis, British imports of these cuts will average 90,384,000 pounds monthly for the two months indicated, of which the United States is allotted 4,480,000 pounds. Recent reports indicate that this temporary agreement will be continued for a third month, and that in July, 1933, restrictions of a more permanent nature will be adopted by the British Government.

Competition with Canada in British pork markets may be further intensified in view of the agreement with Canada drawn at the British Imperial Economic Conference at Ottawa in August, 1932, and subsequently ratified. The agreement provides that in any legislation that may be submitted for regulating the supplies of bacon and hams imported by the United Kingdom, Canada will be permitted free entry of such products of good quality up to a maximum of 280,000,000 pounds per annum. This sum is more than six times as large as Canada's exports during 1932. Although there is a possibility of a marked increase in hog production in Canada, it is doubtful that the production of high-quality bacon will be sufficient to permit that country to take full advantage of its quota at least for several years.

#### DOMESTIC HOG PRODUCTION

The effects of any one of the three plans under consideration, if applied to hogs, depend upon the characteristics of production as well as the characteristics of demand. As essential background material for a study of these effects, the following condensed statement on hog production in the United States is presented.

Although hog production in the United States (in terms of total tonnage of pork and lard) has not fluctuated greatly during recent years, it has trended upward during the last 25 years at a rate slightly greater than the increase in human population. The greatest upward trend in production has been in the west North Central States. (Fig. 7.) These States now have more than half the total hogs in the country, whereas in 1910 they had only 35 per cent of the total. Production in the <sup>3</sup> eastern Corn Belt States since 1910 has increased

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<sup>3</sup> A description of the relation of supplies of hog products in foreign markets to prices of such products in those markets is contained in the first section of Pt. III, entitled, "Probable Effects of Disposing of Larger Pork and Lard Supplies in Foreign Markets."



at a much more moderate rate than in the western Corn Belt. In the South Central and Eastern States, and in the North and Middle Atlantic States, hog production has decreased, whereas the human population in those areas has increased. The trend of hog numbers in the far Western States also has been downward during the last 20 years, but marked fluctuations have occurred from year to year.

The major changes in the geographical distribution of hog production have been closely associated with the geographical shifts in corn production. Corn production also has trended upward in the west North Central States during the last 25 years, and the bulk of the production of both corn and hogs in the United States is now concentrated within a relatively small area. (Figs. 8 and 9.) The area

## Number of Hogs on Farms, Jan. 1, 1910 to Date

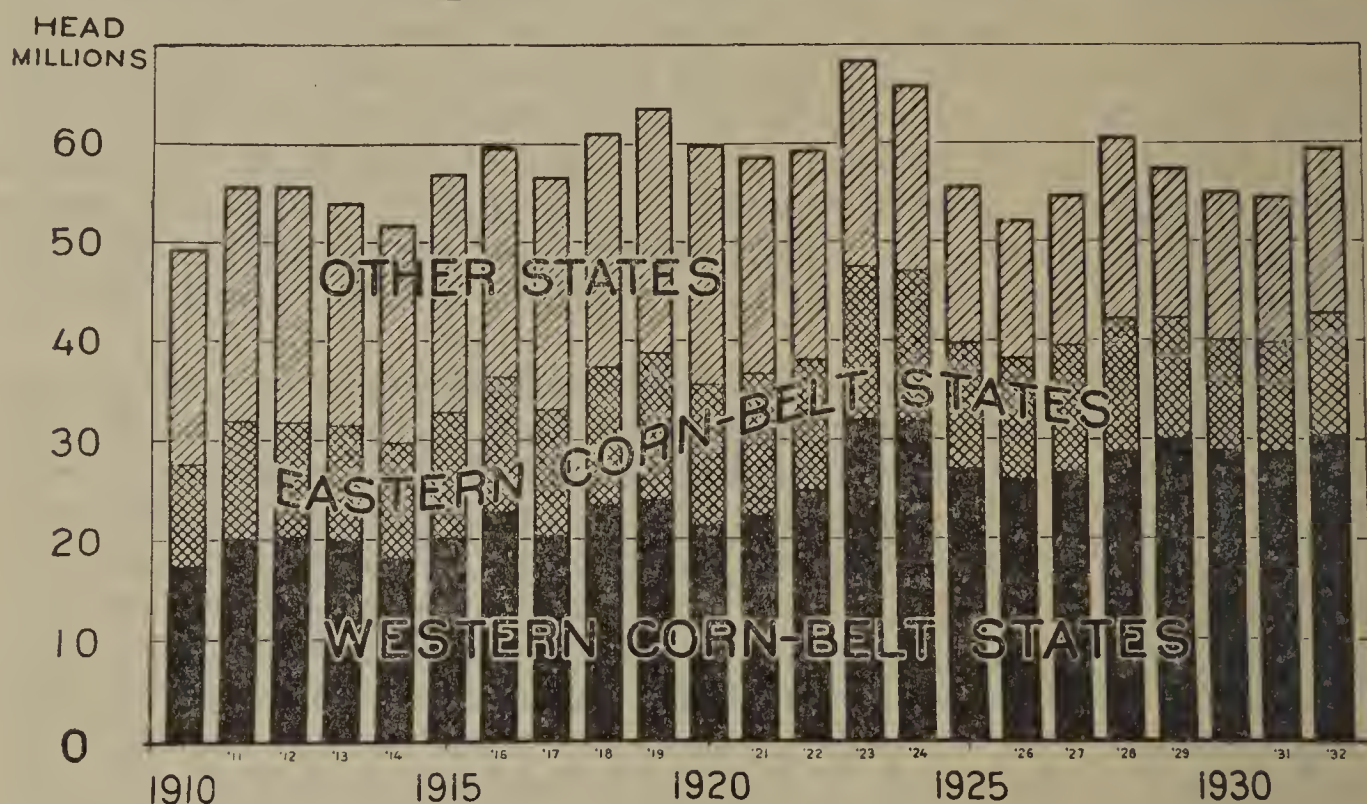


FIGURE 7.—Hog production in the United States is tending toward a greater concentration in the Corn Belt States. In the western Corn Belt States hog numbers have increased considerably during recent years, but all of the increase occurred in the northern half of that area, where corn production has also been materially increased. Numbers in the eastern Corn Belt have tended to remain about the same. Since the World War the numbers of hogs in all States outside of the Corn Belt, particularly the Southern States, have declined considerably.

of concentration includes eastern South Dakota, southern Minnesota and Wisconsin, southern Michigan, western Ohio, all of Indiana, Illinois, and Iowa, northern Missouri, northeastern Kansas, and eastern Nebraska. This area represents the section commonly known as the Corn Belt.

In 1929, approximately 1,880,000,000 bushels of corn, or 74 per cent of the corn produced in the United States, were produced in the Corn Belt States. On January 1, 1930, approximately 40,000,000 hogs, or 72 per cent of the hogs in the United States, were within these same States. The proportion of the corn produced that is used for hog production, as contrasted with other uses, depends to some extent upon the relative prices of hogs, beef cattle, butterfat, cash corn, and the other products in which corn is an important production factor. If hogs are cheap and beef cattle high, cattle feeding will tend to increase. If butterfat production appears to be more profitable than hog production, butterfat production will increase.



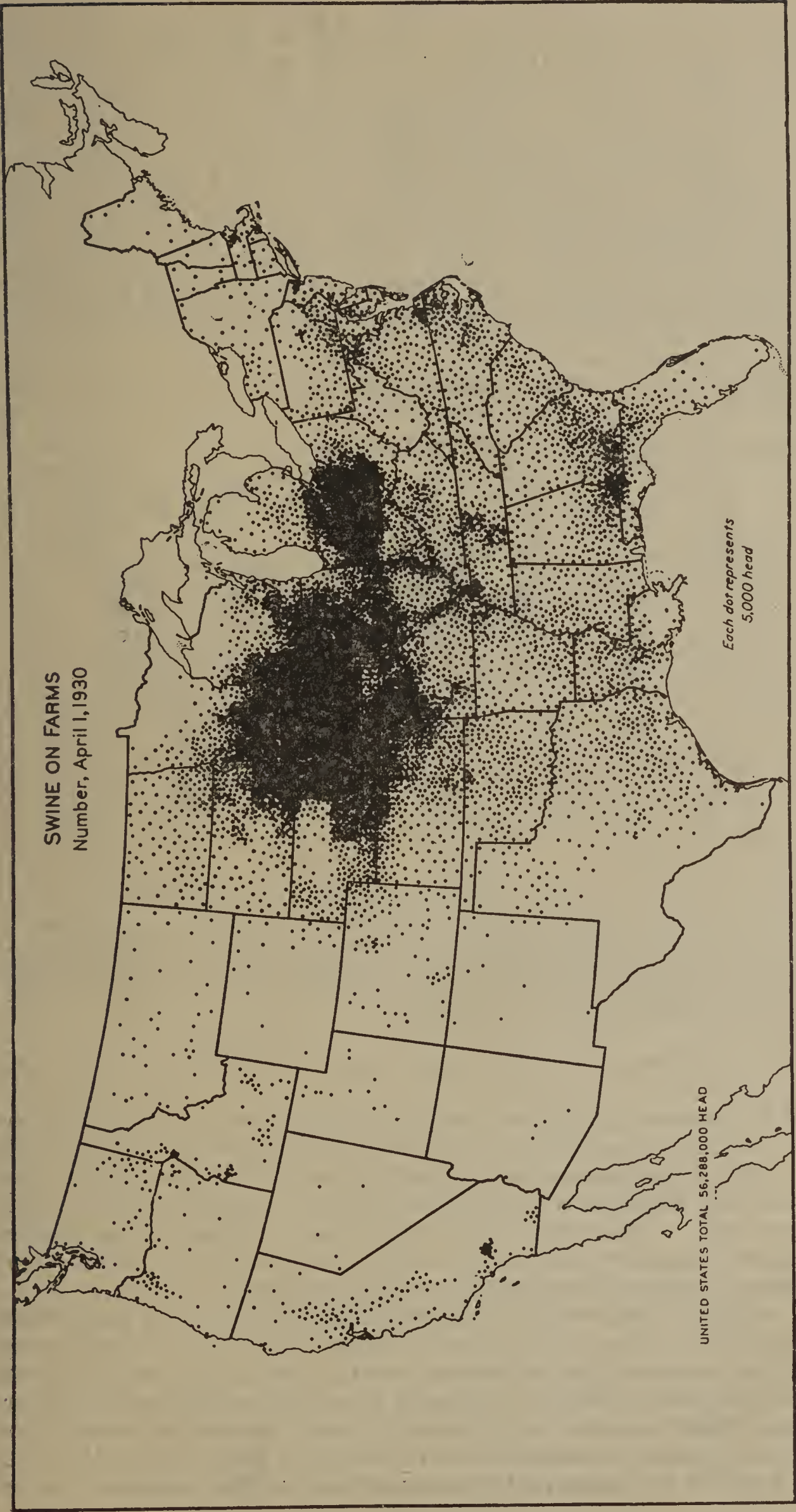


FIGURE 8.—About three-fourths of the hogs in the United States are in the Corn Belt, and most of the commercial supply comes from this area. Hogs are found in every State, but except in a very few areas outside the Corn Belt, they are raised only for local needs. Large quantities of pork products are shipped into the South and other parts of the United States from the Middle West

The important hog-producing section outside the Corn Belt is the southern or Cotton Belt section. In 1929, 16 per cent of the total corn production was produced in the 11 Southern States (including Oklahoma and excluding Virginia), and on January 1, 1930, 18 per cent of the hog numbers of the Nation were in those States. The Southern States have proportionately more hogs on January 1 in relation to their corn production than have the Corn Belt States. This is because (1) hogs in the South are fed extensively on other foods such as peanuts and waste, (2) little corn is fed to other meat animals, and the number of milk cows is relatively small, and (3) hog numbers on January 1 are large relative to actual production, because of the older age at which hogs are slaughtered and because of

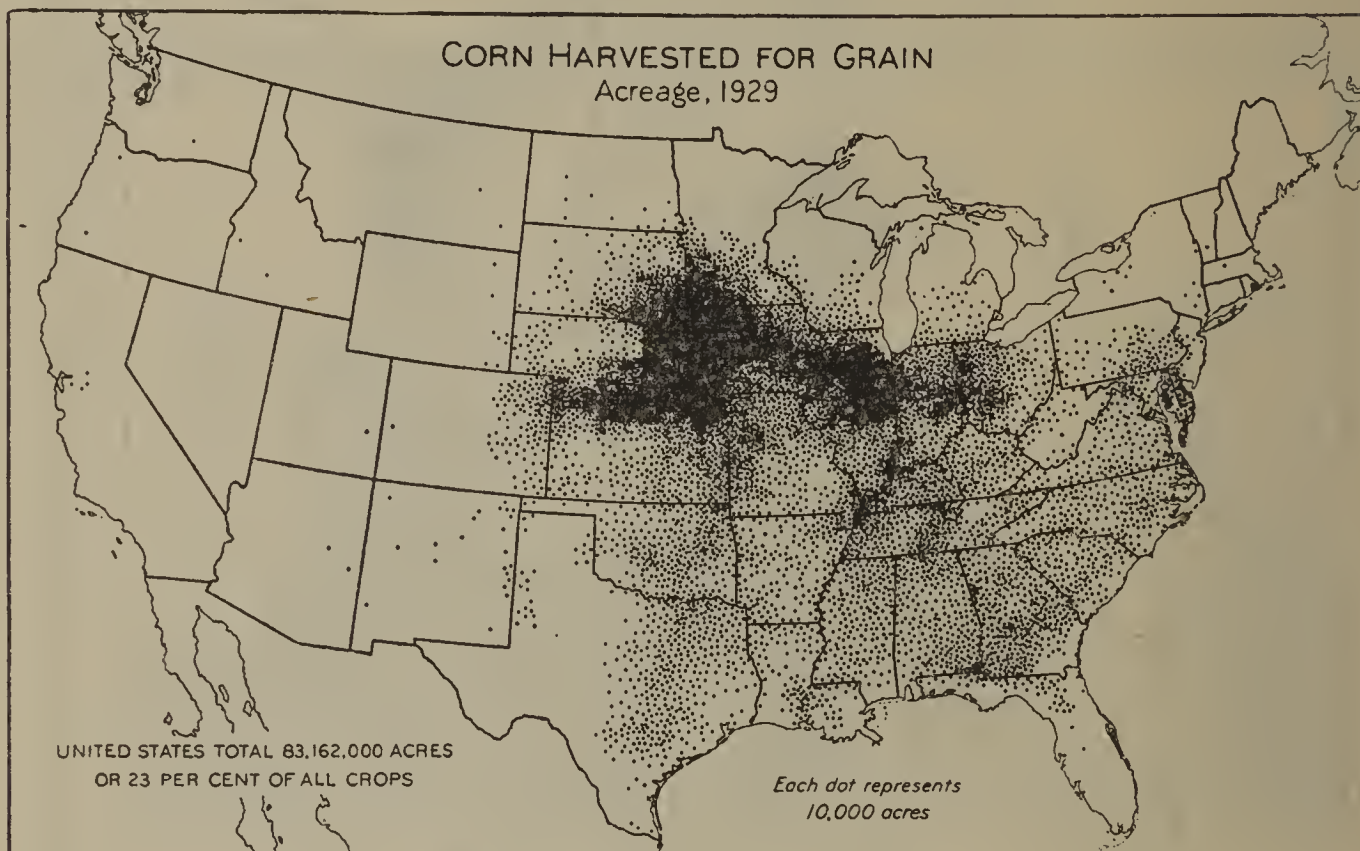


FIGURE 9.—The distribution of the acreage of corn in the United States is similar to the distribution of hogs. Most of the hogs are found in the Middle West where the acreage and production of corn is concentrated. Many Southern States have rather large acreages of corn, but the yield is much smaller than that in the Corn Belt and the grain is used mainly for feeding work stock and livestock other than hogs. Much of the hog production in the South is founded on feeds other than corn, such as peanuts, velvet beans, soybeans, and cowpeas

the large proportion of the sows that farrow in the later months of the year.

Outside the South and the Corn Belt, both corn production and hog numbers are scattered and are relatively unimportant. In 1929–30, 4.5 per cent of the total corn production and 6.5 of the Nation's hog numbers were accounted for by New York, Pennsylvania, Virginia, and Kentucky. There were also some corn and hog areas of local importance in eastern Colorado and in the cultivated central valley of California, where barley is also used as a hog feed.

As a result of these major geographical shifts in hog production, the proportion of the total number of hogs raised that moves through commercial channels has increased greatly during the last 20 years. While hog numbers on farms January 1 have increased around 20 per cent since 1910, commercial slaughter has increased around 72 per cent. The greater concentration of the hog industry in the Corn Belt, where 90 per cent of the commercial supply is raised, largely



accounts for this difference in the rate of expansion of numbers and of commercial slaughter, but the difference is due in part to the fact that in the western Corn Belt, the ratio of hogs raised to numbers on farms January 1 is larger than in other areas.

Although the number of hogs slaughtered locally is now smaller than that of 20 years ago, it has increased considerably during the last three years, as a result of factors associated with the business depression. Hog production in areas outside of the Corn Belt has increased sharply since 1930. The spring pig crop in the Corn Belt States in 1932 was about 2 per cent smaller than in 1930, but outside the Corn Belt States it was 15 per cent larger. The small cash returns from crops produced in areas outside the Corn Belt have encouraged the production of hogs in those areas. An increased quantity of low-priced grain is being fed to hogs in the western grain States. The low prices of cotton have tended to stimulate corn production in the South, and this increase in corn production has been accompanied by an increase in hog production. Both the South and the West are deficit hog-producing regions, and a large proportion of the hogs produced in those regions is slaughtered locally. With the rapid decline in agricultural income during the last three years there has been a general tendency throughout the country for farmers to go on a more nearly self-sufficing basis for food. This tendency has been another important factor in causing hog production to increase in many areas and in causing a larger proportion of the total hog supply to be slaughtered on farms. The extremely low farm prices of hogs also has encouraged the slaughtering of hogs near and within the localities in which they are produced. These shifts in the movement of hogs through the various channels of slaughter have a bearing on the administrative problems involved in collecting a tax or fee from processors as provided for in the equalization fee and domestic allotment plans.

The concentration of hog production in the western Corn Belt, where the average number of hogs raised per farm is much larger than in other sections of the country, has placed the industry on a more efficient basis. An abundance of corn and other feed is produced, the prices of feeds are usually the lowest of any area, and the climate is favorable for hog production. The trend toward commercialization has been accompanied by many improvements in production methods, including greater use of protein supplements in hog rations, more intensive feeding, and a better control of hog diseases. These improvements have made possible the feeding of hogs to heavier weights with no material change in the average age at which hogs are marketed. The average number of pigs saved per litter also has increased considerably during recent years.

The upward trend in hog production during the last two decades has been brought about both by an increase in numbers produced and by feeding hogs to heavier weights. The average weight of hogs marketed has trended upward during the past 15 years. This upward trend has been the result of a combination of circumstances. Hogs in the western Corn Belt are always fed to heavier weights than are those in other sections, largely because of the abundant supply of corn in the western Corn Belt States. Since an increasing proportion of the Nation's supply of hogs is being produced in this area, the average live weight of hogs marketed for the country as a whole has



increased. The development of the serum treatment in preventing hog cholera has been very effective in reducing death losses from that disease. Lessened danger of losses from cholera has probably tended to cause producers to feed their hogs to heavier weights. An additional factor during the first half of the last decade was the relatively strong demand for lard with relatively little price discrimination against heavy hogs. The demand for lard during the last five years has been considerably reduced, but because of the other influences the weight of hogs has continued at a high level.

The weight of hogs marketed is an important factor affecting the relative yields of different kinds of hog products although these yields are also affected by changes in packing-house practices caused by changes in the relative values of the different hog products. Light weight carcasses usually cut out higher yields of hams and loin, and smaller yields of lard, than do heavy carcasses of similar type. If the fat sides of the heavier hog carcasses are utilized entirely as bacon the yield of bacon also is larger than the yield from the lighter hogs. The sides of the heavy hogs, however, are usually trimmed to resemble those of medium-weight hogs and the yield of lard from the heavy carcasses is thereby increased by the fat from these trimmings. During the last 10 years, the ratio of lard yields to those of other products has been higher than at any other time for which records are available.

Factors other than weight have contributed to this higher production of lard. Although the proportion of lard produced has been relatively large during this period, the actual proportion of hog fat probably has been less than formerly because of the marked change in the type of hogs produced. In general, the trend in demand has been away from the heavy cuts of fat pork. During recent years, sales of fat cuts in the South have been sharply reduced. Packers, therefore, have found it necessary to decrease the production of barreled pork and fatbacks and to render a large proportion of these cuts into lard. The relationship between lard prices and fatback prices explains to a large extent why the proportion of lard in hog production has increased despite the decline in the proportion of hog fat produced.

There is a distinct tendency for hog production and hog prices to move in cycles of three to five years' duration. The hog-production cycles, which usually move in directions opposite to those of the hog-price cycles, are largely the result of periodical shifts in the relation between hog prices and corn prices. This fact has a very important bearing on various phases of the proposed plans, especially those phases that pertain to limitation of production.

The corn and hog industries in the United States are highly interdependent. About 50 per cent of the corn produced in the United States is usually marketed through hogs, and represents the bulk of the hog ration. Farmers generally expand their hog business when current prices of corn and hogs are such that the feeding of corn to hogs appear relatively more profitable than the sale of corn for cash, and curtail production when hog feeding appears relatively unprofitable. (Fig 11.)

Therefore, the number of hogs marketed during a specific period is the result of breeding decisions made many months previous, largely on the basis of hog and corn prices existing at that time.



The net result of such a breeding policy is a cycle of increased and decreased production. When hog prices are high in relation to corn prices, breeding is increased and this results in a relatively large number of hogs appearing at markets 18 months to 2 years later. This large supply usually results in relatively low hog prices, and, with the increased demand for corn to feed the large number of hogs, corn prices become high in relation to hog prices; hence the hog-corn-price situation is reversed and the unfavorable price relationship checks breeding operations. This soon results in a relatively small supply of hogs and higher hog prices and a relatively weak demand for corn, and, consequently, lower prices for this grain.

If the demand for hog products remained constant, and if weather and disease did not affect corn and hog production, or if the effect

## Prices of Heavy Hogs at Chicago, 1861 to Date

( ADJUSTED TO 1910-1914 PRICE LEVEL )

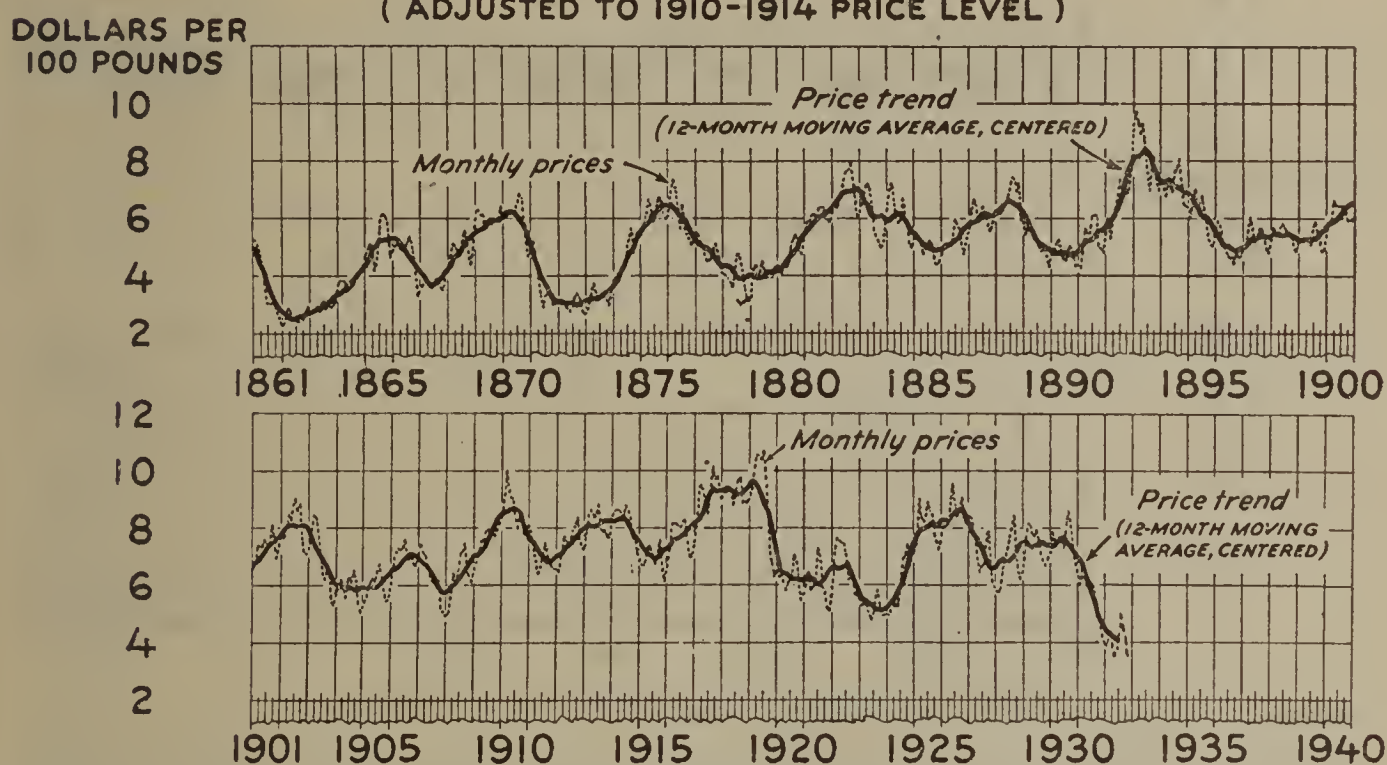


FIGURE 10.—This chart shows the approximate regularity in the cyclical movements of hog prices at Chicago since 1861, after eliminating changes in hog prices associated with changes in the general price level. The dashed line shows the monthly fluctuations in prices and the solid line shows the trend of prices after eliminating the seasonal variation. The cycles in hog prices are usually three to five years in length, and are due largely to cyclical changes in production

were uniform from year to year, the cycles of hog production and prices probably would be very uniform and regular. But there is considerable variation in the length and intensity of the cycles and these variations are due largely to disturbing factors, such as changes in industrial conditions and foreign demand, and variations in the size of the corn crop and in the number of pigs saved per litter. For example, the relatively low price of wheat in 1931 disrupted the normal effect of the hog-corn price ratio upon breeding operations during the summer of that year. Wheat prices during the early part of 1931 were lower than corn prices, and as a result hog production was greatly stimulated in many wheat-producing areas. This, together with the tendency in all areas for farmers to shift more nearly to a self-sufficing basis as regards food, resulted in a greater increase in the 1931 fall pig crop than was indicated by the hog-corn price ratio. The 1932 spring pig crop, on the other hand, was smaller than that indicated by the hog-corn price ratio, partly because



unfavorable weather conditions at farrowing time reduced the number of pigs saved per litter, but largely because of the shortage of corn in the western Corn Belt caused by the 1931 drought.

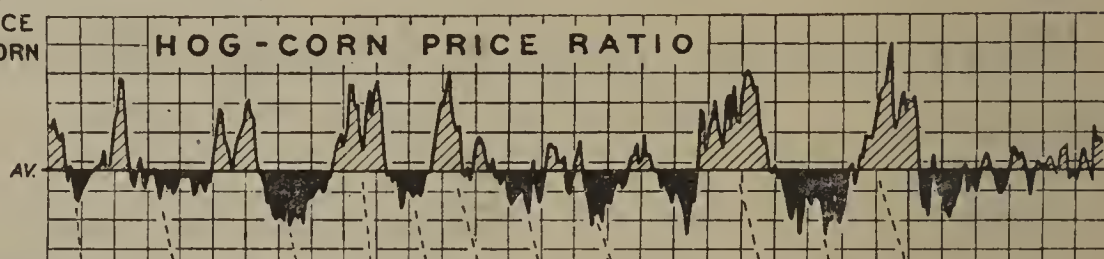
It is evident from the preceding description of farmers' response to prices in hog production, that changes in production occur largely as a result of changes in the relationship of hog prices to feed prices, rather than of changes in hog prices alone. This is well illustrated by developments during 1932. Although hog prices have been at the lowest level in more than 35 years, hog production has increased because the price of corn has been relatively lower than the price of

## Hog-Corn Price Ratios and Hog Marketings

### HOG-CORN PRICE RATIO AT CHICAGO

HOGS: AVERAGE PRICE  
AND No. 3 YELLOW CORN

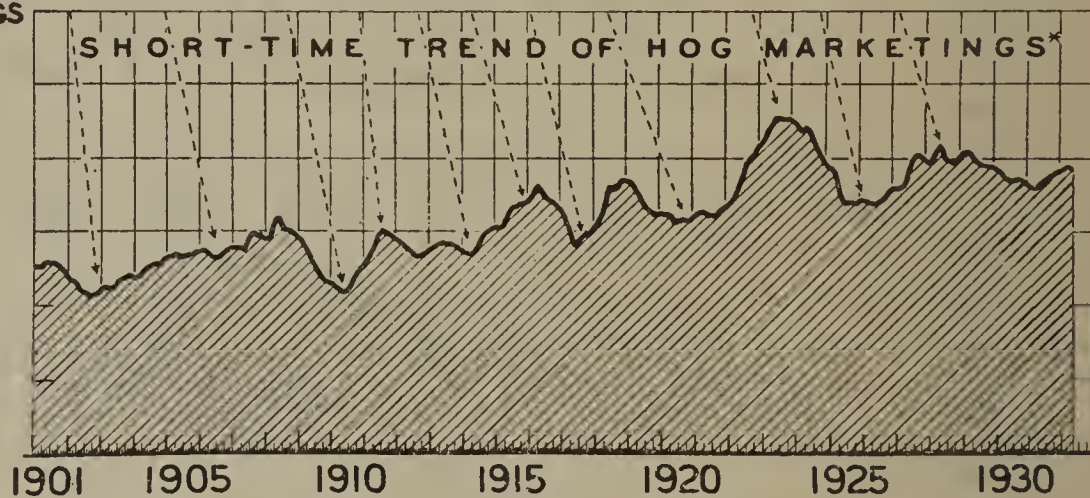
1.6  
1.2  
0.8



HOG MARKETINGS  
MILLIONS

5.0  
4.0  
3.0  
2.0  
1.0  
0

### SHORT-TIME TREND OF HOG MARKETINGS\*



\* 12-MONTH MOVING AVERAGE OF HOG SLAUGHTER, FEDERALLY INSPECTED

FIGURE 11.—This chart shows how the relation of the price of corn to the price of hogs creates the hog cycle. The upper part shows the hog-corn price ratio drawn above and below the average line. The lower part shows the changes in hog marketings with the seasonal variation taken out. A period of greater-than-average hog-corn price ratios causes an increase in hog marketings a year or two later, whereas a period of smaller-than-average ratios is followed by a decrease in marketings

hogs. Based on current prices of hogs and corn, farmers have been able to dispose of their corn to a better advantage by feeding it to hogs than by selling it for cash. It is significant, however, that the increase in the number of sows to farrow in the spring of 1933, as indicated by breeding intentions reported about December 1, 1932, is smaller than normally would be expected in view of the relation of hog prices to corn prices during the last year. This indicates that the reaction of hog producers to a given price relationship between hogs and corn probably depends to some extent upon the price level of these commodities. These responses to price in hog production have a distinct relation to the problem of adjusting the production of hogs in order to maintain any given price or any given relationship of hog prices to other prices, and are especially significant in relation to any effort to limit hog production in stipulated proportions.



### PART III

#### THE PROBABLE EFFECTS OF VARIOUS RELIEF PLANS IF APPLIED TO HOGS

The principal economic developments in the hog industry during recent years and the factors that are largely responsible for its present economic position were discussed in Parts I and II. In Part III consideration will be given to the export debenture, equalization fee, and domestic allotment plans, with the view of determining as nearly as possible the way in which the application of each of these plans "would probably offset or improve the position of hog producers both in the short and long runs," to quote the Senate resolution under which this report is prepared.

At the outset it should be understood that no exact analysis can be made of any farm relief plan. In a changing economic society, such as ours, in which frequent shifts in economic relationships occur, an appraisal of the probable effects of injecting new influences into the price mechanism requires certain qualifications. In this analysis, the following qualifications are necessary:

(1) The analysis presented herein indicates the probable effect that each plan would tend to have on hog prices and on the total income from hogs, but in actual practice the effects of a plan might be obscured by other influences. Commodity prices in the United States during the last three years have been dominated by general economic conditions at home and abroad. Although there have been some factors tending to support prices during this period, they have been much more than offset by the depressing influences associated with the world-wide business depression and, as a result, prices have declined. If a plan were put into operation just before a severe decline in the general level of commodity prices such as has occurred since 1929, hog prices probably could not be maintained by the operation of that plan. On the other hand, if the plan were put into operation in a period of rising prices and expanding business activity, it might well appear to be successful even if it were not exerting any price-supporting influence. The factors affecting hog prices in future years will doubtless continue to be numerous and variable, and any relief plan applied to hogs would be only one of many price making influences.

(2) The analysis has been confined entirely to the probable effects of the plans if applied to hogs, and is not intended as an indication of the probable effects of the plans if applied to other commodities. The Senate resolution does not call for a study of these plans relative to other commodities.

(3) Legal phases of the plans are not considered in this analysis.

#### PROBABLE EFFECTS OF DISPOSING OF LARGER PORK AND LARD SUPPLIES IN FOREIGN MARKETS

The three plans under consideration would have varying effects on the exports of hog products. The export debenture plan and the



equalization fee plan are essentially similar in that both are designed to stimulate exports and thereby raise the domestic price of the farm products to which they are applied. The domestic allotment plan, aside from any effect which its mechanism for the control of production would have upon total output, would tend to increase exports but in a manner different from the way the other two plans would affect exports. As this plan is expected to operate, according to some views, the increase in exports would result from such diminution in domestic consumption as would follow an increase in price to the consumer upon the application of the tax on the processor of the commodity. The precise nature of this distinction, however, need not concern us at this point, although it will be taken up in detail later. Any tendency for exports to increase under the "voluntary domestic allotment plan" and under the "national emergency act," it is proposed, would be wholly or in part offset by curtailment in total domestic production under that plan. Indeed, if the production-control mechanism should be even approximately as effective as some believe it would be, the exports might even be diminished materially if the reduced domestic consumption by reason of the increased price should be less than the total curtailment in production. Since it will be necessary to consider separately the proposed mechanism for the control of production under the allotment plan as it would apply to hogs, it is necessary at this point only to consider the effect of larger exports of pork and lard in general, leaving for the separate sections devoted to each of the proposed plans a discussion of the effect each plan might have on domestic production of hogs. The probable effect of exporting a larger quantity of pork and lard than would be exported otherwise, assuming constant conditions affecting production and demand, is a major consideration in appraising all of the relief plans, even though the importance of this feature varies considerably as between the various plans.

The extent to which producers would receive a greater total money income over a short period of time as a result of a policy of disposing of a larger proportion of the total pork and lard supply in foreign markets, disregarding problems and costs of administration, depends largely upon (1) the effect of the larger supplies on prices in foreign markets, (2) the effect of the smaller supplies on domestic prices, and (3) the proportion of the supply exported.

It is obvious that the larger exports would tend to cause foreign prices of American hog products to decline and that this price decline would apply not only to the added quantity exported, but to total exports as well. The smaller supply to be consumed in this country than would otherwise be available, would tend to raise domestic prices. Therefore, if the price advance should be sufficient to bring an increase in the total wholesale value of hog products consumed at home large enough to more than offset the effect of reduced prices on the total value of exports, then producers would be benefited initially. It is impossible to estimate accurately what effect an increased supply of United States pork and lard on foreign markets would have on foreign prices of those products, or to what extent prices in the United States would rise if domestic supplies were reduced, but an analysis of relationships of supply and price during recent years provides a basis for formulating an opinion as to what might be expected.



In the United Kingdom (and the Irish Free State), pork consumption has ranged from 1,500,000,000 to 2,000,000,000 pounds during recent years, or 34 to 41 pounds per capita. From 55 to 65 per cent of the pork consumed has been imported. There is a wide variety as to kind, quality, cure, and types of cuts in the pork consumed in the United Kingdom. Prices of Danish Wiltshire sides reflect accurately the returns from the Danish pork; quotations on American short-cut green hams form a good index of the prices of United States hams, and those on American green bellies indicate the level of prices paid for bacon from the United States.

However, there is a marked variation in the spread in prices of these various cuts. There is a tendency for prices of each kind of

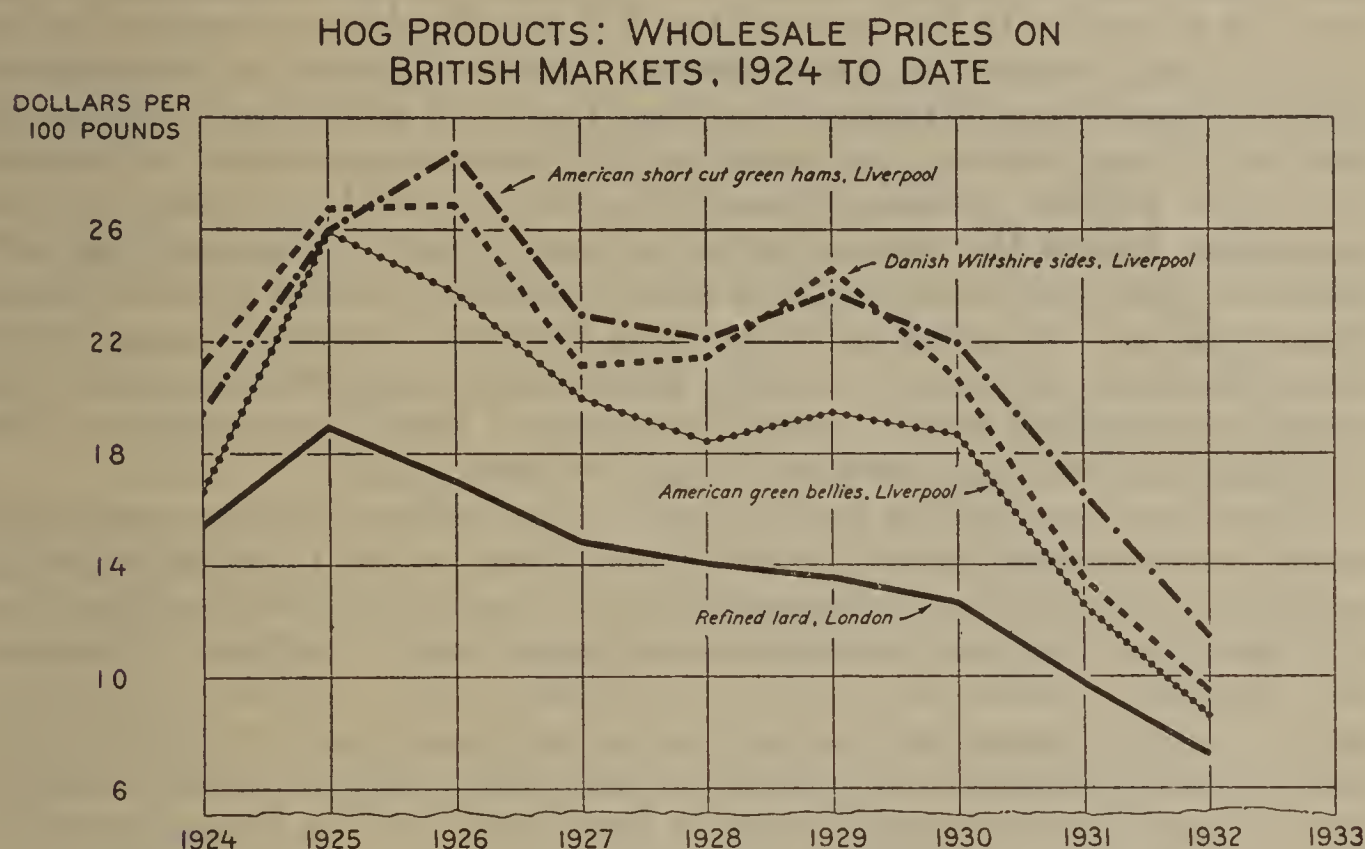


FIGURE 12.—The trend in prices of nearly all hog products on British markets has been downward since 1926, with sharp declines occurring since 1929. The sharp decline in pork prices during the last three years has been due to increased supplies and a marked reduction in consumer purchasing power in the United Kingdom. The declines have been relatively greater in the price of Danish Wiltshire sides than in prices of American pork. This difference in rate of decline has been due largely to the fact that the proportion of the Danish product in total British pork imports has increased greatly, while the proportion of American pork has declined. The reduction in the price of American lard in Great Britain during this period has not been so great as the drop in either continental or American pork prices. The supply of lard in British markets has been fairly stable during the period and the proportion of the American lard in the total has not changed materially

product to vary inversely with the proportion that the supply of the product is of the total supply; and demand factors also apparently influence the price spreads to some extent. As was indicated earlier, pork products from the United States are commodities that differ considerably from Danish and similar pork products, and the competitive relationship between them is not easily determined. The fact that imports into the United Kingdom from the United States have declined while those from Denmark and other countries have increased only indicates that at the relative prices prevailing the British trade has preferred the latter. But during this time the Danish product has been lower in price relative to the American than it was a few years earlier. (Fig. 12.) During 1932, the wholesale price of Danish Wiltshire sides has been about the same as the simple average of American green hams and bellies and refined lard. From



1924 to 1928, however, prices of Danish Wiltshires were considerably above the average price of these American products. In 1932, the average price of Danish Wiltshires was \$9.42 and the average price of American products was \$9.04. In 1925, Wiltshires were \$26.79, and the average of American products was \$23.62.

Exports of cured pork from the United States to the United Kingdom during 1931 amounted to about 95,000,000 pounds, or nearly two-thirds of the total export movement from the United States. Although this represented only a small proportion of the total pork consumed in the United Kingdom, it was a much smaller proportion of the pork produced in the United States. The relationship between supplies and prices in the two countries during recent years indicates that a given increase in pork exports to the United Kingdom would result in a decline in the general level of wholesale pork prices in that country that would be considerably greater than the advance in domestic prices at wholesale, resulting from the reduction in domestic supplies through increasing exports by the same quantity. Furthermore, the British prices of American pork would probably decline more than would the general level of pork prices. Despite this fact, however, the total returns from pork produced in the United States might still be increased by expanding exports (barring the adoption of retaliatory measures by the importing countries) because the quantity exported would constitute such a small proportion of the total supply; but the increase would be very small.

There is a possibility that some of the unfavorable elements involved in exporting larger quantities of pork might be offset through a change in methods of merchandising. In British pork markets, as well as in the markets for almost any commodity, highest prices are not obtained unless a regular, adequate, and uniform supply is assured. As pointed out earlier, the established position of American lard in British markets is due, in considerable degree, to the uniform quality and regular supply that is furnished to the British market. For pork, the United Kingdom is dependent upon imports. Elaborate distributing agencies have been developed to distribute the imported supplies. These agencies can function best only with regular and standardized supplies, for there is little incentive to advertise or otherwise promote the sale of a product to consumers unless there is assurance that if consumer preference is created, supplies will be available to fulfill this requirement. During recent years American supplies of pork to British markets have not been uniform.

United States exports of lard are much larger than those of pork. In 1931, lard exports amounted to 578,000,000 pounds, or about 25 per cent of our total production, whereas pork exports totaled only 160,000,000 pounds, or about 2 per cent of our production. The effect of disposing of larger quantities of hog products abroad, therefore, would be governed largely by the effect on the total value of lard produced.

It was pointed out earlier that the United Kingdom is our most important foreign outlet for lard as well as for pork. About one-half of the total lard exports in 1931 was shipped to that country. During recent years lard consumption in the British Isles has been fairly stable, ranging from 290,000,000 to 340,000,000 pounds, and about three-fourths of this supply has been furnished by the United States. The demand for lard in the United Kingdom is apparently somewhat



more elastic than the demand for lard in the United States. As consumption increases, the total wholesale value tends to remain about the same, whereas in the United States the total wholesale value decreases when consumption is increased.

Germany ranks next to the United Kingdom as an important outlet for American lard. Until recent years, takings by Germany were as large as the imports to the United Kingdom, but as lard production in Germany has increased, the proportion of United States lard exports going to that country has declined, and in 1931, such exports constituted about one-fourth of the total. The relation of lard consumption to the price of lard in Germany apparently is about the same as in the United Kingdom. Data are inadequate for studying the relation of consumption to price in other countries that are important in the United States lard export trade.

According to the relationships between supply and price of lard in the United Kingdom, in Germany, and in the United States during recent years, an increase in lard exports during 1931 of 125,000,000 pounds (about 20 per cent) would probably have caused wholesale lard prices in the United States to rise sufficiently to make an increased return of 1 or 2 cents per pound on all lard produced under Federal inspection. However, the assumption involved in this rough approximation that the relation between consumption and price of recent years would have been maintained under such conditions may or may not be valid. Consumption of lard in the United Kingdom and in Germany has been fairly stable during recent years, and the increases assumed in the above calculations would place the level of consumption in those countries beyond record levels; hence, historical records provide meager evidence as to the effect such large supplies would have had in 1931, or might have in the future, on lard prices. For example, a reduction in lard prices might open up many new outlets. Lard might be freely substituted for vegetable and marine oils in inedible as well as edible uses. Under such conditions, the increase in supply would probably be accompanied by a smaller reduction in prices than that indicated by the relationship between the price and the volume consumed in recent years. On the other hand, such a marked and abrupt change in the quantity of lard shipped abroad might cause a much greater decline in foreign prices for lard than indicated in the above analysis.

#### POSSIBILITY OF RETALIATORY ACTION BY FOREIGN GOVERNMENTS

In the discussion thus far, it has been assumed that exports could be stimulated without causing foreign governments to take retaliatory action. The experience of foreign countries with farm relief measures, and other information available, do not permit definite prediction as to the dangers of provoking reprisals by foreign countries if any of the plans included in this analysis should be put into operation with respect to hogs. But a consideration of the probable reaction of foreign governments is essential to an appraisal of the plans under consideration.

Most foreign countries have either definite bounty countervailing provisions or general antidumping statutes, or both. Moreover, the tariff provisions of practically all countries are sufficiently flexible so that, even though the statutes do not grant specific authority, counter-



vailing action in some form could be taken against any commodity, the exports of which are stimulated by the payment of export bounties or by other means. This does not mean, however, that if an export bounty, or the equivalent thereof, is granted to one or more commodities in this country, countervailing action would be taken by practically all foreign countries. The Australian butter stabilization plan which became effective in 1926 resulted in the placing of countervailing duties on Australian butter in the United States and in Canada. On the other hand, in Great Britain, the principal foreign outlet for Australian butter, no retaliatory action was taken. The fact that Australia is a part of the British Empire may have been a partial reason. However, the quantity of dairy products produced in Great Britain represents a very small proportion of the quantity consumed in that country. The sugar bounties of European countries during the eighties and nineties provoked numerous reprisals. In 1890 the United States not only imposed countervailing duties on sugar, but also provided bounties to American sugar producers. The threat by Great Britain to establish equalizing duties to protect producers in some of its colonies was the motivating force which eventually led to a general cessation of bounty payments and to a widespread reduction of import duties on sugar.

These and other experiences indicate that retaliation to export bounties on farm products has been closely related to the effect on agriculture in the countries receiving the products on which bounties were being paid. On a number of occasions bounty-supported products have entered countries in which the domestic production of such products was of little national interest, without provoking reprisals. On the other hand, in some countries where production of such products was of considerable importance to the agriculture and where producers had strong influence on national policies, retaliatory action has been taken, even though only small quantities of the bounty-supported products were being imported.

Lard production in the United Kingdom and its dominions is of very little importance. The quantity of lard produced in the United Kingdom represents a small proportion of the quantity consumed, and the United States furnishes about four-fifths of the imported supply. In the recent negotiations between Great Britain and its colonies with respect to Empire preference no action was taken to give lard of Empire origin a preference in British markets. It appears doubtful that an increase in lard exports resulting from the operations of a farm relief plan in this country would provoke serious reprisals in the United Kingdom.

In Germany, lard production is of greater importance than it is in the United Kingdom. About 55 per cent of the lard required for domestic consumption in Germany is produced at home. As in the case of the United Kingdom, the principal foreign source of lard is the United States. There is a greater possibility that some form of retaliation might be adopted against United States lard in Germany than in the United Kingdom. Germany is definitely committed to the policy of agricultural protection. As a result of expanded production of hogs and reduced buying power of consumers, returns to hog producers in that country during the last year have been very unfavorable.



The present high level of production provides practically all of the pork necessary to meet the domestic requirements in Germany, but, despite the record hog production, only slightly more than one-half the lard consumed is produced at home. Thus it would require almost double the present number of hogs in Germany to provide sufficient lard for that country's requirements, if the average yield of lard per animal remained the same. Although lard yield would probably increase as a result of greater protection from foreign competition, it would be impossible for the yield to be changed sufficiently to provide enough lard to meet the requirements of that country without placing pork production on an export basis. This of course would have a very depressing effect on prices of pork in Germany.

Lard imported into Germany at the present time is subject to a tariff of about 1 cent per pound and the amount of foreign exchange available for importing lard is limited. The German-Swedish trade treaty, which provides a preferential tariff duty on lard from the most-favored nations, expires on February 15, 1933, and the adoption of increased duties on or soon after that date is expected. In order to prevent large imports in anticipation of an increase in the import duty, the German Government placed in effect on January 1, 1933, an order limiting lard imports to 80 per cent of those of a year earlier. This restriction probably will be removed as soon as the new duty becomes effective; but it indicates the possibility of similar action if lard exports from the United States to Germany should be stimulated materially through the operation of a relief plan.

As indicated earlier in this report, United States exports encounter much more foreign competition in pork production than in lard production. Many forms of governmental aid to hog producers have been adopted by European countries during the last few years. Even in the United Kingdom, the largest pork-importing country, definite steps are being taken in an effort to improve the economic status of the domestic hog industry. Some action toward restricting nonempire pork appears probable regardless of steps taken to aid hog producers in the United States, but if the latter should occur in a manner that could be construed as dumping, the restrictions on our pork trade with Great Britain might be made more drastic.

There is also the possibility that Denmark and other continental hog-producing countries might meet any increased competition in British markets arising from stimulated exports from the United States by giving aid to their hog producers in a way somewhat comparable to that adopted in this country. Germany would be more likely to take retaliatory action against increased exports of pork to that country than against increased lard exports. Hog production in Germany is almost sufficient to meet domestic requirements for pork, and prices of pork in that country are abnormally low.

#### THE EXPORT DEBENTURE PLAN

##### PRINCIPAL FEATURES OF THE PLAN

The export debenture plan is designed to raise domestic prices above their normal relation to world prices by stimulating exports, thereby reducing domestic supplies, through an export bounty in the form of a "debenture" which has a specified face value and is redeemable in payment of import duties. In other words, it is designed to



"make the tariff effective" on those farm products of which this country produces an exportable surplus, by establishing higher domestic prices, relative to prices in world markets, and relying on the tariff to protect the increased domestic price.

The plan appears in its latest form in Senate bill No. 4536 of the first session, Seventy-second Congress. As embodied in this bill, the plan provides that an exporter of a given agricultural commodity would be entitled to receive from the United States Treasury a payment in the form of a certificate or debenture redeemable under specified conditions by a collector of customs or by the Treasury. The debenture rates are specified for five commodities, but for other commodities the plan provides for rates equal to one-half the tariff rate in each case.<sup>4</sup> On products manufactured from debenturable commodities, the plan provides for rates equal to the debentures that would be issuable upon the exportation of the quantity of the commodities used in the manufacture of the products. It is provided that the debenture rates shall be reduced by certain percentages if production of any given debenturable commodity shall have become unduly stimulated.

In order to procure the issuance of an export debenture with respect to any farm product or manufactured product thereof, Senate bill 4536 provides that the exporter in accordance with such regulations as the Secretary of the Treasury may prescribe shall file an application and submit satisfactory proof that he is entitled to such debenture. The debenture may be (1) used by the exporter to pay import duties on goods imported by him; (2) sold direct to an importer who would use the debenture in payment of import duties; or (3) sold on the open market, eventually being used by an importer in payment of import duties. In order to prevent undue speculation in the handling of such debentures the Secretary of the Treasury is authorized and directed, under such rules and regulations as he may prescribe, to provide for the redemption of such debentures from money in the Treasury derived from payment of duties collectible against articles imported at a rate of not less than 98 per cent of the face value of such debentures.

#### COSTS AND PROBLEMS OF ADMINISTRATION

The export debenture plan, if applied to hogs, would be, in fact, a bounty paid by the United States Treasury to exporters of hog products. Under some versions of the plan, the debenture certificates would be redeemable at the Treasury under certain conditions. In the main, however, the plan provides for intercepting customs revenues before they get into the Treasury. So long as the total amount of debentures issued in a given period is materially less than the amount of customs revenues, the debenture certificates would have their face value in payment of import duties by the holder, and almost their face value when sold by him to another, to be used by the latter in payment of import duties.

Because of brokerage fees in the sale of the debenture certificates and by reason of other costs of handling them, including a slight

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<sup>4</sup> Commodities for which the debenture rates are specified and the respective rates are: Corn, 7½ cents per bushel; rice, one-half of 1 cent per pound; wheat, 21 cents per bushel; cotton, 2 cents per pound; and tobacco, 2 cents per pound. Present import duties on hog products are as follows: Fresh pork, 2.5 cents per pound; other pork, 3.25 cents per pound; and lard, 3.0 cents per pound.



inconvenience to which the importer might be put in purchasing certificates for payment of import duties rather than paying the same in cash, the debentures would sell slightly under their face value. The discount, however, would be relatively small unless the total issue of debentures closely approached or exceeded the total customs revenues. Whatever the discount, the effective bounty for the stimulation of exports of pork would equal the face value of the debenture minus the discount. In this report the pork bounty as used in relation to the export debenture plan means the face value of the debenture certificate minus the discount.

In addition to the loss of customs revenues, the cost to the Treasury would consist of the cost of issuing and redeeming the debenture certificates. It is reasonable to suppose that these charges would be small. Administration of the plan would be relatively simple. Federal agencies already in existence could administer it, and with the exception of some expansion in personnel within these agencies, little additional administrative expense would be necessary.

All in all, the significant expense would be the loss in customs receipts to the Treasury. Although the amount can not be estimated accurately for any future period, an indication of the probable sum involved may be had by studying the plan in relation to exports in past years. If export debentures equal to one-half of the tariff rates had been paid on hog products during the fiscal year, 1931-32, and if exports had been the same, the loss to the Treasury would have been approximately \$10,000,000.<sup>5</sup> In practice, however, the loss to the Treasury might have been greater than indicated, since exports would have increased under the stimulating effects of the export bounty unless increased exports were prevented by retaliatory action on the part of foreign countries.

The loss in revenue to the Treasury from debenture payments might be offset to some extent by increased revenue from other sources arising from an increase in farm income. To the extent that farm income was increased as a result of the plan, purchases of certain industrial goods would be stimulated, and as a result, Federal taxes from other sources would tend to increase. Obviously, the extent to which these forces would become operative would be governed by the effectiveness of the plan in increasing income to producers of debenturable commodities. If countervailing duties were adopted in all countries buying the debenturable commodities, there would be in effect, a transference of revenues from the Treasury of the United States to the treasuries of foreign countries. Granting, however, that the plan would increase Federal revenue from some sources, the increase under the most favorable conditions would be small compared with the loss in customs revenue arising from the debenture payments.

The problem of determining the debenture rates for applying the plan to hogs is more complicated than in the case of most commodities of which an exportable surplus is produced because of the fact that the rate would apply primarily to cured pork and lard and not to live hogs nor to all of the joint products produced from live hogs. Of the total exports of hog products in 1931, lard constituted, by weight, 78 per cent; hams and shoulders, 12 per cent; and bacon, 5 per cent. The

<sup>5</sup> It is of interest to note that if, in 1931-32, debentures had been paid on all major farm products of which a significant exportable surplus is produced, at rates approximately the same as those indicated in Senate bill No. 4536, and if exports had been no larger, the loss to the Treasury would have amounted to about \$140,000,000. Net customs duties during that fiscal year totaled about \$311,000,000.



relation of the quantity exported of each product to total exports of hog products is, of course, disproportionate to the yields of these products from the hog carcass. Each 100 pounds of live hog yields, on the average, about 15 pounds of lard, 23 pounds of hams and shoulders, and 12 pounds of bacon. Therefore, in determining the probable effects of the plan it is necessary to consider how much advance in the domestic prices of the various products would result from the application of the rate, what the advance in the price of the products would mean in terms of price of the live animal if it were entirely passed on to the producer, and the extent to which the advance in the price of the product would be fully reflected in live-hog prices.

#### INITIAL EFFECT ON PRICES

The issuance of export debentures on hog products would cause exports of such products to increase until the domestic price of the hog product would be raised relative to the foreign price by the amount of the export bounty. The absolute rise in the domestic price, however, would not be equivalent to the amount of the bounty. Increased exports would cause foreign prices of the product to decline and the reduction in domestic supplies resulting from increased exports would cause domestic prices to advance.

It has been pointed out earlier in this report that the possibilities of gain from such operations appear to be much greater in the case of lard than in the case of pork. The relationships between supply and price at home and abroad indicate that an export bounty on lard equal to one-half the tariff rate might be expected to raise domestic prices by an amount equal to somewhat more than half of the bounty. But in the case of hams, shoulders, and bacon the results from the application of a bounty probably would not be so favorable as with lard, because of the numerous difficulties encountered by the United States in competing for the pork export trade. As exports of pork increased, a "foreign-price-plus-bounty parity" with domestic prices would be brought about much more rapidly and with a smaller increase in exports than would be true in the case of lard, and the rise in domestic prices would represent a smaller proportion of the bounty. If the debenture rates should be made greater than one-half of the tariff rates a somewhat greater rise in domestic prices of the hog products would be obtained, but the proportion of the bounty absorbed by lower prices abroad also would be somewhat greater. The cost to the Treasury, of course, would be greater in the case of lard than in the case of pork, because of the greater increase in exports.

The relationship between retail and wholesale prices of hog products and prices of live hogs during recent years shows that although these margins fluctuate somewhat, practically all of the significant changes in prices of hog products are reflected in the prices of hogs paid to producers. (See Table 8 of Appendix B.) This suggests that most of the rise in prices of hog products resulting from the operations of the plan would be reflected back to the producer. However, the reflection would be less direct, and might be less complete for a while at least, than in the case of a commodity which is exported in the same form as that in which it is marketed from the farm. In any event the rise in the price per pound of live hogs would be less than the rise in the price per pound of pork and lard because of the



difference between the weight of the live animal and the weight of the salable products obtained from the animal.

The support that the export debenture plan would give to the domestic hog market might soon be reflected in ways other than through higher prices. In the preceding discussion no attention has been given to the effect that the debenture might have on market supplies within a short or long period of time. This is an important consideration, since it has a direct bearing on the success or failure of the plan. The effect on domestic production would be governed largely by the extent that the operation of the plan tended to cause hog prices to rise. In order to present all of the major possibilities it is assumed, in the following discussion of the effect on production, that the rise in prices may be either large or small. In actual practice the short-time effects on production might be sufficient to offset the price-supporting influences of the debenture plan; and the long-time effects, therefore, might not become operative. The effect on foreign production also is considered, since it has a bearing upon the long-time influences on world prices and consequently domestic prices.

#### EFFECT ON PRODUCTION

When export premiums or bounties have been adopted in foreign countries, one of the primary objectives in most instances has been to stimulate production within the country offering the bounty. In this country, however, it is recognized that if production is greatly increased, the main objective of the debenture will have been defeated. The plan as proposed for the United States should be examined carefully to see whether this natural tendency of the application of the debenture principle can be controlled.

The application of the debenture plan would no doubt change somewhat the price relationships among the various hog products. Initially it would probably cause prices of lard to rise relative to other products, since the bounty would probably be more effective on lard than on pork. The first reaction to this situation would probably be that packers would convert a larger proportion of the carcass into lard by decreasing the proportion going into dry-salt fat cuts and by closer trimming of others. This would tend to distribute the price advance to all hog products and bring back the previous price relationships. These changes in packing-house practice might not be sufficient to reduce lard prices to their previous relative level, as compared with pork. Under such conditions, the price of heavy hogs would tend to sell higher relative to the lighter weights, and this in turn would encourage producers to feed their hogs to heavier weights, thereby increasing the market supply of both pork and lard within a relatively short period of time. A larger proportion of the stocks of cottonseed oil might be manufactured into lard compounds within a short time and thereby increase the supply of competing edible fats. It is also possible that because of the price-supporting influence which had been given to lard and other edible fats, a larger proportion of the cottonseed supply might go to oil mills, thus increasing the supply of cottonseed oil.

The above-mentioned tendencies to increase supplies would operate within a relatively short period of time—in most instances, less than a year. If in the face of these tendencies there would still remain a



significant price-supporting influence from the debentures, the possibility of further offsetting this influence by increased production of hogs would still prevail.

In Part II it was demonstrated that farmers increase hog production rather quickly in response to a relatively favorable hog-corn price ratio. There is no reason to believe that a similar response would not occur if hog feeding became relatively more favorable because of higher hog prices resulting from export debentures. The extent of the expansion would depend in part upon the scope of the plan. If it were applied to hogs and to all agricultural products that compete with hogs for the use of land, the expansion would be less marked than if the plan were applied to hogs alone, but since prices of a number of such commodities including oats, hay, and cattle, would be affected little if at all by export debentures, any material enhancement in hog prices probably would result in increased hog production. The prevailing level of hog prices also would be likely to influence the rate of expansion. A change in the price relationship of hogs to feed would not be likely to affect production so much when hog prices were at a low level as when they were at a higher level.

Several debenture bills have contained provisions for checking overproduction by making adjustments in the debenture rates. The debenture plan in its latest form as incorporated in Senate bill 4536 contains the following provision with respect to such rate adjustments:

In order to prevent undue stimulation in the production of any debenturable agricultural commodity, whenever said board finds that the production of any debenturable agricultural commodity during any crop year has exceeded the average annual production of such debenturable agricultural commodity for the preceding five years, said board shall proclaim such fact and the debenture rates for such commodity shall be reduced by the percentage hereinafter fixed. Such reductions shall become effective on the date fixed in such proclamation, not less than 60 days from the date of the issuance thereof, and shall remain in effect for one year. The term "crop year," as used in this paragraph means a 12-month period beginning at a time designated by said board.

The schedule of reductions provided for in the bill are as follows:

Increase in production over average of preceding 5 years (per cent)	Reduction in debenture rates (per cent)
0-20	0
20-30	20
30-50	50
50 or more.	99

According to these provisions, the debenture rate would not be reduced unless production in any one year exceeded the average of the previous five years by 20 per cent. At no time in the last 20 years has the increase in the yearly pig crop equaled or exceeded this percentage and, if production should expand from present levels to that extent, hog production would be much larger than at any time in the history of this country. It seems fairly obvious, therefore, that rate reductions according to such a schedule would be of no assistance in checking overexpansion.

The schedule for rate reductions might be made more flexible than the one given above. For example, the reduction in debenture rates might begin when production increases 5 per cent, rather than 20 per cent. Such a provision would become operative quite fre-



quently, and farmers no doubt would probably continue to change hog production largely in response to changes in the relationships between hog prices and feed prices. Although some farmers might refrain from expanding their hog enterprise because of the possibility of rate reductions if the hog industry of the entire country expanded, it is unlikely that such a possibility would have any appreciable influence on most producers in planning their hog-production programs. Most farmers probably are aware of the fact that when production increases, prices usually decline; nevertheless, they expand production when hog prices become high relative to feed prices. There is little reason to believe that producers would refrain from increasing production because of the dangers of a reduction in debenture rates any more than they do because of the dangers of lower prices caused by increased supplies. The provisions for reducing debenture rates would probably have an effect after production had expanded, but not before an expansion had occurred, as they should to fulfill their purpose.

Reducing the debenture rate as soon as it has been determined that production has exceeded a certain amount would tend to intensify rather than eliminate price fluctuations, and make for additional risks to producers, processors, and distributors. When production increased, not only would the larger market supply cause prices to decline, but the reduction in the export bounty would have an additional depressing influence; hence under the operations of this plan, a large supply would be accompanied by prices lower than those which would prevail if the plan were not operative and a small supply would be accompanied by prices higher than they would be otherwise.

It should not be inferred from the preceding discussion of the probable effect of the export debenture plan on hog prices and of the probable effect of price enhancement upon hog production, that the danger of increasing production as the result of an advance in prices is a valid argument against every conceivable measure and influence that raises prices to producers. Obviously, the raising of prices by methods or under conditions such that production is likely to increase to the extent of eliminating all benefits therefrom is fruitless, but prices can be increased without materially increasing production, and increased production does not necessarily lower prices or reduce incomes to producers. When the price of an agricultural commodity is low relative to all other farm products and to the costs of production, the price of that commodity may be advanced to some extent without increasing production to any significant degree, if at all. The production of hogs depends largely upon the production of corn, and the price of corn. If the price of corn were raised along with the price of hogs, the increase in hog prices might not result in increased production. Increasing the price of a product such as hogs may not result in a significant increase in production if the prices of other farm products are correspondingly increased at the same time by increasing the general price level or the incomes of consumers. Furthermore, if the price improvement were secured through an increase in the purchasing power of consumers and expanding foreign markets, there could be an increase in production without a reduction in prices or in the income to producers.

It is very difficult to ascertain, especially in advance, the precise effect that the operations of the plan would have on foreign production. The supply of hogs that will be produced in foreign countries



at any given level of hog prices is influenced by numerous factors. It stands to reason that there might be some decrease in foreign production under the pressure of increased exports from this country. Nevertheless, the assumption certainly is not warranted that the decline in foreign production would be enough to offset the price-depressing influence of increased exports from the United States. Increased pork exports would affect world prices of the American product much more than they would affect prices of the foreign product. Furthermore, a major share of the increase in exports probably would be in lard, and the yield of lard from hogs produced in foreign countries is relatively small. Recalling what was said earlier in the report about the possibilities of foreign retaliation, the greater the pressure of American exports as a result of the proposed plan, the greater would be the likelihood of the adoption of retaliatory measures by some of the foreign governments. To the extent that such measures would be applied, they would tend to nullify the price-raising influence which this plan would exert in the American producers' market.

#### THE EQUALIZATION FEE PLAN

##### PRINCIPAL FEATURES OF THE PLAN

The objective of the equalization fee plan, like that of the export debenture plan, is to raise the prices received by the producers for their product by stimulating exports and maintaining domestic prices above their normal relation to world prices. The difference between the domestic price and the world price on the exportable surplus, it is proposed, would be paid out of a stabilization fund for the commodity. This fund would be maintained by an equalization fee collected upon the transportation, processing, or sale, of each marketed unit of the commodity. Initial advances may be made from a revolving fund appropriated from the Treasury, which in turn would be reimbursed from the stabilization fund. This plan, like the export debenture proposal, assumes a tariff to protect the domestic market against imports.

Although both the export debenture and the equalization fee plans are designed to stimulate the export movement of pork and lard and thereby raise domestic prices, the export mechanism of the equalization fee plan is quite different from that of the debenture plan. Under the latter an export bounty would be paid to any exporter of hog products. Under the equalization fee plan a board or other authority designated to administer the plan would use the funds secured by the equalization fee to finance the exportation of the commodity, either by designated organizations or by regular trade agencies, or both.

Under the export debenture, the amount of the export bounty or rebate per unit of product would be fixed by the debenture rate. Under the equalization fee plan, however, the difference between the domestic price and the foreign price which the fee could be expected to cover would not be so clearly defined. Instead, it would depend upon both the size of the equalization fee and the quantity of pork and lard exported relative to the total quantity produced. If 20 per cent of the commercial supply of pork and lard were exported, for example, an



equalization fee of \$0.50 per dressed hundredweight would be enough to support a difference of \$2.50 per hundredweight on the pork and lard exported, exclusive of the cost of operation which also would be paid out of the funds raised by the equalization fee.

#### MECHANICS OF OPERATION

According to one proposed method of operating the plan, the board would enter into a "marketing agreement" with existing agencies to remove certain quantities of pork and lard from the domestic market. Such a contract would be essentially an agreement to make good any losses that might be incurred by the exporters through purchasing pork and lard in the domestic market at a higher level of prices, shipping it abroad, and selling it for what it might bring in the export market. Presumably, the control board would so regulate its contracts that the revenues derived from the collection of the equalization fee, in addition to covering operating charges would approximately equal the losses incurred on account of such exports so that the revolving fund would be kept intact.

Another method of operating the plan would be for a series of hog-marketing associations to link themselves together into an export corporation and directly handle the marketing function. Such an export corporation would use the revolving fund to buy pork and lard in the domestic market, and would export it through such foreign agencies or branches as it might establish.

Still another method of operation, and much the simplest method, would be for the control board to apply such funds as might be obtained from the collection of the equalization fee to the payment of a specific bounty upon such pork and lard as might be exported. Such a plan would allow the actual direction of the export trade to remain under private control, would involve no new and complicated export organization, and would require the use of only a relatively small revolving fund. In effect, it would be an export debenture plan financed by the assessment of a fee against the transportation, slaughter, or sale of hogs or hog products in the domestic market rather than by intercepting customs duties before they get to the Treasury.

#### INITIAL EFFECT ON PRICE

Whatever plan of operation were adopted, the equalization fee would be used to finance an increased export movement of pork and lard. If total production would not be altered, any gain which would accrue to the producers of hogs would have to come from an increased total value of the restricted supply of pork and lard in the domestic market, from an increased total value of the increased supply of exported pork and lard, or from both.

If the equalization fee should be assessed against the slaughter operation, it may be assumed that the fee would be paid to the Government by the packers and local slaughterers. To them, however, it would represent an added cost of operation. And if the operation of the plan should not otherwise affect them to any considerable extent, they would probably either (1) reduce the price offered for hogs in the wholesale market and force the producers to absorb the full burden of the fee, or (2) shift the burden of the fee forward through the retail tradesman to the consumers in the domestic market as



contemplated in the plan itself, or (3) do partly the one and partly the other, that is, shift part of the burden of the fee on to producers and part of it forward to consumers.

In the short period that might elapse between the first imposition of the fee and the time when the actual effect of the operation of the plan became apparent, there is little to indicate the extent to which the fee would be shifted backward to the producer and forward to the consumer. In any event the plan is predicated upon the assumption that the fee would be passed on to the consumer and that the price to the producer would rise materially above what it otherwise would be. The whole purpose of the plan is to do the latter—get for the farmer a higher price for his hogs.

Since it is generally proposed that the board charged with the operation of the plan will be given command of a sufficiently large “stabilization fund,” initially, by advances from the revolving fund supplied by the Treasury, to make it possible to begin export operations when the fee is imposed, the period of uncertainty should be quite short. The board would either (1) arrange with the packers or other concerns to export a larger quantity of pork and lard each month, or (2) enter into marketing agreements with cooperative associations or corporations created and controlled by them to handle the desired quantity of pork and lard in the domestic market each month and handle the export movement itself. In either case, the supplies of pork and lard on the domestic market would be curtailed by stimulation of exports, and consumers would be expected to bid the price of the restricted supplies up to a higher level. As indicated by analysis of the elasticity of demand for hog products, the increase in the price to consumers could be approximately in proportion to the decrease in domestic supply resulting from the stimulated exports.

Even if a plan succeeds in raising the domestic price to a level well above its normal relation to world prices, it does not necessarily follow that the domestic price to producers would be higher by the same amount than it otherwise would be. The stimulated exports may depress world prices to offset a greater or lesser part of the difference between the domestic and the world price levels of the commodity.

As the equalization fee would have to be deducted from the price paid by the consumer, the increase in retail prices would have to be equivalent to more than the equalization fee if hog prices were raised above what they would be without the plan. That the domestic wholesale and retail prices of hog products would be maintained substantially above world-price parity is a practical certainty. But this does not prove that such domestic prices would rise by the amount of the difference, because a substantial price difference between the domestic and foreign market may be created either by depressing the world price through increased exports or by increasing the domestic price by the relative scarcity at home resulting from increased exports, or both. It has been pointed out earlier in this report that, disregarding costs of administration, the total value of hog products probably could be increased somewhat by increasing exports. Thus if no costs were involved in the mechanics of operating the plan it is probable that hog prices would be higher than they would be otherwise and that prices to consumers would rise by more than the amount of the equalization fee. No reliable estimate of the cost



of administering the plan can be made, but it seems probable that a small rise in hog prices above what they would be otherwise might occur. This conclusion is based in part upon the assumption of no increase in domestic production—an assumption that must be examined next.

#### EFFECT ON PRODUCTION

It was demonstrated in Part II that if hog prices advance sufficiently relative to feed prices to make it more advantageous to feed corn to hogs than to sell it for cash, producers soon respond by increasing hog production. To the extent that the initial effect of the operation of the equalization fee plan should result in making the feeding of hogs more favorable by causing hog prices to rise relative to the price of corn, pork and lard production would be increased. As in the case of the export debenture plan, however, the more favorable hog-corn price relationship probably would not affect production so much when hog prices were at a low level as when they were at a higher level. The price-raising influence would probably be greater on lard than on pork. This would tend to cause packers to convert a larger proportion of the hog carcasses into lard and to cause producers to feed their hogs to heavier weights. The latter would increase the supply of both pork and lard. A rise in lard prices would also tend to strengthen the price of lard substitutes. This might cause a large proportion of the stocks of cottonseed oil to be manufactured into lard compounds and a larger proportion of the cottonseed supply might go to oil mills, thus increasing the supply of cottonseed oil.

That production would increase in response to an increased price has been generally recognized and a number of production-control devices have been proposed. A common production-control proposal is to reduce the relief benefit if production is increased a given percentage, with the expectation that the individual producer would be deterred from increasing his production for fear of an increased equalization fee deducted from the consumer's price, leaving the producer with a lower price than he would get otherwise. The consequences of increased production under the plan, therefore, would not be significantly different from the consequences of increased production now.

It is already clearly demonstrated that, other things being equal, increased total production results in a lower price. Even if such a control device were to be incorporated in the equalization fee plan, it is doubtful that it would have much effect on the individual hog producer. Each producer must decide for himself whether he will increase or decrease production. Since the quantity of pork that the individual producer can produce is usually quite limited, he does not usually consider the effect of his increased production on total production. Yet only a small absolute increase on the part of each producer would mean a large absolute increase in total production.

Any increase in production of pork and lard resulting from an increase in the price under this plan and any decrease in domestic consumption, because of the higher price to consumers and because of increased use of substitutes, would of course increase the supply for export. As pointed out earlier in the report, an increase in exports would depress the world market price for pork and lard, particularly for the former, on account of limited outlet and the peculiar



circumstances affecting the exportation of American pork. This decline in the world market price, of course, would affect the price paid to the American producer, even if the equalization fee plan maintained a domestic price level above its normal relation to world prices. The extent to which the decline in the world price would offset the initial increase in the domestic price to the producer relative to the world price depends in large part upon the elasticity of supply in foreign pork-producing countries. If that elasticity were very small, that is, if foreign producers would continue to produce about the same quantity even with a further depression in price resulting from increased exports from this country, it is conceivable that the price difference between the domestic market and the foreign market would be achieved largely, if not wholly, by a depression in the foreign price.

In this case, of course, there would be no improvement in the price to the domestic producer above what it would be without the plan. On the other hand, if the supply of pork in foreign countries were decidedly elastic—that is, if foreign producers would be compelled to reduce their output due to the depression in price that would result from increased American exports—the world price of pork and lard would tend to stabilize at a level only slightly below the level that would prevail if the plan were not in operation. This presumably would result in an increase in the price to the domestic producer.

It is very difficult to ascertain, especially in advance, the precise effect that the operations of the plan would have on foreign production. The supply of hogs that will be produced in foreign countries at any given level of hog prices is influenced by numerous factors. It stands to reason that there might be some decrease in foreign production under the pressure of increased exports from this country. Nevertheless, the assumption certainly is not warranted that the decline in foreign production would be enough to offset the price-depressing influence of increased exports from the United States.

Increased pork exports would affect world prices of the American product much more than they would affect prices of the foreign product. Furthermore, a major share of the increase in exports probably would be in lard, and the yield of lard from hogs produced in foreign countries is relatively small. Recalling what was said earlier in the report about the possibilities of foreign retaliation, the greater the pressure of American exports as a result of the proposed plan, the greater would be the likelihood of the adoption of retaliatory measures by some of the foreign governments. To the extent that such measures would be applied, they would tend to nullify the price-raising influence which this plan would exert in the American producers' market.

#### ADMINISTRATIVE PROBLEMS

In the form in which the plan usually has been presented the equalization fee "shall be \* \* \* apportioned and paid as a regulation of interstate and foreign commerce in the commodity." (S. 3555, 70th Cong.) The amount of the fee, it was provided, would be determined by the administrative board on the basis of its advance estimates of "probable losses, costs, and charges to be paid under marketing agreements." The fee was to have been collected on "the transportation, processing, or sale of each unit of the commodity," as the board may determine.



As already pointed out, the primary requirement for funds to be raised by the equalization fee arises out of payment of the difference between the domestic price and the world price on the exportable surplus. A second and perhaps a lesser requirement would be for the payment of any losses arising from "stabilization operations" through holding or purchase, storage, and subsequent resale of pork products in the domestic market, if it were decided to undertake such operations in this commodity. Third, it would be necessary to rely upon the equalization fee for funds to defray the expense of operation.

Estimates in advance of the amount of funds needed under each of these requirements with respect to hogs would be very difficult to make. Under the first of the three requirements just enumerated it would be necessary not only to determine the difference that would be maintained between the domestic price and the world price but also to estimate in advance the amount of the exportable surplus. This estimate, as we have seen, would depend upon the increase in price to domestic consumers that would result from the operation of the plan and the effect which this increase would have on domestic consumption and consequently on exports. Advance estimates of the exportable surplus also would depend on the probable increase in price to domestic producers under the operation of the plan, and the effect of such increase on domestic production.

All these uncertainties presumably could be met in part by frequent changes in the amount of the equalization fee in an effort to adjust revenues to requirements as they become known. The last equalization fee bill passed by Congress authorized the board to determine and to publish from time to time the amount of the equalization fee and "to specify the time in which the particular fee shall remain in effect." This necessarily would inject considerable uncertainty into the business of transporting, processing, and merchandising hog products as would any commodity tax that is subject to frequent change. These problems involved in determining the amount of the equalization fee are difficult, but perhaps not insurmountable.

The collection of the fees also would present real problems. Since the handling of hog products is most concentrated in the slaughter stage, it may be assumed that the fee would be imposed at the point of slaughter, in which case it would be applied substantially as a manufacturers' sales tax. If the fee should be levied on every hog slaughtered for sale, collection would be difficult, as it would be very hard to enforce it in all cases of commercial slaughter—from the individual producer who slaughters one or a few animals for sale in his home village, through the wide variety of small independent slaughterers, up to the large packer; consequently, either a large degree of evasion or an extensive and costly machinery of enforcement appears inescapable.

In addition to illegal evasion, legal escape from the fee might prove to be considerable. The fee, as pointed out above, would be imposed "as a regulation of interstate and foreign commerce." Although no attempt is made in this report to pass on any legal question, it is pertinent to call attention to the fact that many such questions are likely to arise relative to the distinction between interstate and intra-state commerce in the transportation, processing, and sale of hog products. Hogs are produced and hog products are consumed in every State of the Union.



The inducement to take advantage of any exemption from the fee under the law would be very great as the equalization fee necessarily would be substantial in relation to the price paid by consumers for hog products. This in turn would stimulate hog production in deficit-producing States and would correspondingly restrict the market for hogs produced in areas of surplus production. This would tend to encourage hog production in localities that are less suited for this particular farming enterprise and discourage the production in areas better suited for it. The latter areas presumably would export to foreign markets a larger percentage of their production and would receive a price above its normal relation to world price. The equalization fee would tend to be concentrated on the products of surplus-producing areas to the extent that consumers in deficit-producing areas would be able to get products that are produced and processed locally and for which no fee has been collected by reason of either legal or illegal escape.

#### THE DOMESTIC ALLOTMENT PLAN

The domestic allotment plan has been presented in many forms, with the following basic aims:

(1) To increase the returns to the individual producer by means of a price supplement (variously called "domestic allotment benefit," "fair exchange allowance," "bonus," etc.) on his domestic allotment, that is, on that portion of his production which is deemed to represent his part of the domestic requirements for the crop or class of livestock; and (2) to control production either by avoiding stimulation of production or by requiring definite curtailment by individual farmers as a condition of receiving benefits under the plan.

A tax would be levied on the processor at a fixed or a variable rate per unit of the commodity processed for domestic consumption, to provide funds for the price supplement, and for meeting costs of administration. Wholesale and retail prices in the domestic market would be maintained above their normal relation to world prices by means of the tariff on the commodity or by collecting the adjustment charge on imports, or by both. Exportation of that part of the crop or class of livestock not required for domestic consumption would be permitted and even encouraged. This would be done by allowing exportation of the commodity in unprocessed form without payment of the tax, by an offset or tax rebate on any processed part of the commodity sold in export if the tax has been paid upon it, and by allowing processing in bond for export.

In the application of these elements, however, the hog industry has distinct characteristics, both as to production and marketing, that distinguish hog products from some of the other commodities to which an application of this plan has been proposed. Hence, it is attempted in this section to deal with hogs in considerable detail, differentiating the presentation mainly between the plan without the control of production and the plan with control of production.

The principles of the plan without provisions for controlling production are incorporated in H. R. 12649 of the Seventy-second Congress, and in S. 4940 and H. R. 12841. The latter two are companion measures. As embodied in these bills, the plan provides for emergency



relief in a particular year as distinguished from the operation of the plan over a period of years.

The voluntary domestic allotment plan which provides for definite control of production is incorporated in various bills, particularly S. 4985 and H. R. 12918, companion bills in the Seventy-second Congress. These bills embodying the voluntary domestic allotment plan as applied to hogs provide that the benefits shall accrue only to the hog producers who agree to limit production by such amount as may be specified by the administrative board.

The emergency agricultural relief plan will be considered first. As the principles of the two plans are similar except for the provision for production control, the analysis of the emergency plan will apply to the principles of the voluntary domestic allotment plan except for the provisions for production control.

#### THE EMERGENCY AGRICULTURAL RELIEF PLAN

(Domestic allotment plan without control of production)

*Principal features of the plan.*—The emergency agricultural relief plan as applied to hogs provides for the collection of a tax of 2 cents a pound on hogs slaughtered, with which to create a special revolving fund. An equivalent of the tax would be refunded on hog products exported unless they were processed in bond. The percentage of the total supply of hog products moving into domestic consumption is estimated, based on previous average consumption. As producers market their hogs, they would receive adjustment certificates redeemable at the rate of the excise tax per unit on the product minus cost of operation.

A study of this plan involves a consideration of the following:

(1) Effect the tax and the export drawback would have on prices of hogs to producers and on prices of hog products to consumers, if production remained unchanged.

(2) Proportion of the total tax collected that would be paid back to producers.

(3) Effect of the plan on production.

(4) Problems of administering the plan.

*Initial effect on prices.*—The immediate effect of the imposition of the tax on hogs at the point of processing would be to increase the cost of hogs to the processor. The spread between the price per 100 pounds of hog at Chicago and the wholesale value in New York of the principal hog products obtained from 100 pounds of live hog during 1932, amounted to \$2.01, and for all edible products it was about \$2.70. Approximately one-fifth of this amount represents the costs of freight and refrigeration. If some of the processors should enjoy a margin sufficient to absorb a part of the tax there appears to be no mechanism in the levying of the proposed tax that would require them to do so.

It is possible, however, the excise tax on hogs slaughtered would intensify the competition among packers who pay the tax and also among retailers who handle their products. Under the plan, as now, competitive forces would be the principal factor in reducing margins. To the extent that the imposition of the tax would intensify the competition among packers and among distributors, it would tend to facilitate the absorption of some part of the tax. In addition to



the ordinary costs of operation, the expense involved in handling the tax assessments probably would be added to operating charges. These additional costs, however, should not be large, as the mechanics involved in keeping the records and accounts would be about the same as those in making other excise-tax returns.

Assuming, then, that a part of the tax might be absorbed by slaughtering or distributors, the remainder would be passed forward to consumers through higher retail prices, passed backwards to producers and deducted from the price they otherwise would get, or divided between the consumer and the producer. In much of the discussion of the domestic allotment plan it seems to be assumed that the tax would be passed on to the consumer altogether. This does not necessarily follow, as this tax, like any other excise tax on a commodity, would be shifted along the line of least resistance. This means that, in some commodities more than in others, at least some of it would be shifted back to the producer.

It was shown in an earlier section of this report that total consumer expenditures for pork and lard are determined largely by the level of consumer income. Furthermore, it was pointed out that at a given level of consumer income, the total amount spent by consumers for a large supply of pork is about the same as the amount spent for a small supply. In other words, if total consumer income remains unchanged, a change in consumption is offset by an inverse change in prices, so that the total retail value of pork consumed remains approximately the same regardless of the quantity consumed.

Under these conditions, then, if it is assumed that the entire excise tax on hogs were passed forward to consumers through an increase in retail prices by the equivalent of the tax, the consumption of pork would be greatly reduced. It is noteworthy that such a rise in retail prices in cents per pound of pork and lard would be considerably more than the tax per pound of live animal, as the weight of the salable products obtained from a hog is much less than the weight of the live animal. Two cents per pound live weight equals, on the average, about 3 cents per pound of pork and lard. However, the tax would not result in a uniform price advance on all hog products sold at retail. A rise of 3 cents per pound would be equal to 15 to 30 per cent of the present retail prices in New York City of the principal products, and 50 per cent or more of present retail prices of most of the minor products. Any rise in retail prices as a result of the tax probably would be confined largely to the higher priced products. If all the tax were passed on to consumers on the principal products only, it would increase the retail price of these products on the average about 4 cents per pound.<sup>6</sup> During 1932, the average retail value in New York City of the principal products obtained from 100 pounds of live hog was \$8.87. A tax of \$2 on the 100 pounds of live hogs yielding this quantity of products sold in retail, if charged to consumers, would increase the retail value to \$10.87. This represents an increase of 22.5 per cent.<sup>7</sup> At a given level of consumer income, such an increase in retail prices could not be maintained without a

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<sup>6</sup> The principal hog products are: Cured ham, bacon, picnics, pork chops (loin), and lard. They represent about 79 per cent of the hog carcass weight and their market value is equal to about 90 per cent of the total value of all edible products obtained from the carcass. The total weight of these products in 100 pounds of live hog is about 52.6 pounds.

<sup>7</sup> The situation with respect to hog products is in contrast to that for some other commodities, such as cotton, and to a lesser extent, wheat, where the cost of raw material represents a small proportion of the price of the final product to the consumer.



substantial reduction in the volume of hog products for domestic consumption. Effort to maintain such an increase in retail prices without a corresponding reduction in supply would cause products to accumulate in storage. Because of their perishability and the resultant high cost of storage under the refrigeration necessary to prevent spoilage, the accumulated stocks would have to be disposed of within a relatively short period. These stocks, of course, would have to be disposed of either in the domestic market or in the foreign market.

The plan provides for the payment of a drawback or refund of the tax on the live-weight equivalent of hog products exported. Processing in bond, without payment of the tax, also is permitted for exports. In effect and as intended, the tax is assessed only against products processed for domestic consumption. It is clear, however, that if the tax were charged initially to the consumers and if wholesale prices were higher than before by the equivalent of the tax, the drawback or refund of the tax in exports would only offset the increase in domestic wholesale prices, and exports would not be increased. Thus, in order to move the accumulating surplus into consumption here and abroad, it would be necessary to reduce domestic wholesale and retail prices of hog products below the level to which the tax initially had raised these prices. With this price reduction, the surplus would diminish as a result of increases in domestic consumption and in exports above the quantities that would be disposed of in those channels if the plan were not in operation.

A material increase in exports evidently would depress the world price. This would result in a lower price to the producer at home. Even if the tax maintained domestic prices to consumers at a level consistently above the normal relation to world prices, it does not necessarily follow that this new differential in favor of the domestic price would be a clear gain to the domestic producer. It is possible that the new price to the producer would be less than the former price plus the differential, because of the depressed world price resulting from the increased exports. The increased supplies as a result of decreased consumption would force down prices of live hogs until a new balance would be reached. Higher retail prices in this country than those prevailing before the plan was put into operation and lower domestic consumption of hog products would cause increased exports and lower prices of hogs to producers.

The question then arises: How much would hog prices to producers be reduced in this readjustment of supplies and prices? In the first place, the answer depends to some extent upon the level of hog prices at the time the measure becomes operative. Hog prices at Chicago January, 1933, were only slightly above \$3 per 100 pounds. With hog prices at such a low level, only a small proportion of the proposed tax of \$2 per 100 pounds could be passed back to producers without reducing, at least temporarily, the supply that would be marketed. In some areas the net cash returns from hogs would no more than pay the cost of marketing, if a large share of the tax were deducted from the price of hogs. Under such conditions, the reduction in marketings would tend to check the further decline in hog prices for awhile at least. Since the payment to producers from the tax fund would be on the basis of marketings, according to the emergency



agricultural relief plan, farmers might continue marketing hogs at lower prices than they otherwise would receive.

If hog prices were high enough to permit a large proportion of the tax to be passed back to producers without having any appreciable effect upon the rate of marketings, the situation would be quite different. The extent to which hog prices would be reduced under these conditions would be governed largely by the amount that exports would be increased because of the payment of the drawback on the exported products or the processing in bond.

The amount of increase in exports and the extent to which a given increase in exports would depress the world prices depend largely on the effect of supplies on prices in foreign markets as compared with the relationships of supply to price in this country, assuming an unrestricted market. It is evident that exports would increase until domestic prices of hog products would be higher in relation to world prices by the amount of the tax. The amount of the increase in exports would be considerable, although a relatively small proportion of our total production. Since this plan would provide for disposing of hog products in foreign markets at prices lower relatively to prices to consumers in this country than those which normally prevail, it is possible that foreign barriers might be erected. The reaction of foreign countries might be more favorable to the voluntary allotment plan, especially if that plan succeeded in its aim to control production.

The exact amount of increase in exports can not be measured, nor can the amount of the reduction in hog prices be determined with exactness. However, the analysis presented earlier as to the probable effect of the plan on consumption and on prices at home and abroad suggests that the increase in exports would be small relatively to our total supply; that consumption at home would decline approximately in proportion to the increase in price to consumers; and that this, together with the limited foreign outlet, would depress the price to the producer. On the basis of these conclusions, therefore, it seems reasonable to expect that a substantial proportion of the tax would be passed back to producers and would be deducted from the price that otherwise would be paid them. This tax, like other taxes of similar character, would be shifted along the lines of least resistance. The limited foreign outlet and the relatively elastic demand in the domestic market preclude the shifting of the greater share of the tax to the consumer. Thus in the case of hogs the line of least resistance appears to be in the direction of the producer. It is highly probable, therefore, that within a relatively short time a substantial part of the tax would be shifted to the producer, and would be deducted from the price that otherwise would be paid him. As already noted, however, the producer would receive a price supplement or bonus on the hogs marketed by him as a part of the allotment. The extent to which this bonus on a part of the year's production would exceed the reduction in price of the whole production is a vital consideration in determining whether the individual farmer would receive a greater income with this plan than without it.

*Payments to producers.*—It is proposed that each individual producer be given certificates entitling him to share in the net proceeds of the excise tax collected, according to the domestic consumption percentages of his own production. Expenses of operation must be



paid from the collection (limited by the bill to  $2\frac{1}{2}$  per cent of collections) and the amount paid to exporters as a drawback on exports of hog products would be deducted from the fund. Sales of hogs in 1931 were estimated at 12,400,000,000 pounds and of this the exports of hog products amounted to 738,000,000 pounds. The excise tax at 2 cents per pound would have amounted to \$248,000,000 and an export drawback of  $3\frac{1}{2}$  cents per pound on hog products (estimated equivalent of 2 cents tax on live hogs) would have amounted to about \$26,000,000. The expense of administration, if limited to  $2\frac{1}{2}$  per cent, would have amounted to \$5,800,000. The net amount for distribution to growers would have been \$216,000,000 or 87 per cent of the amount collected. If, however, the plan had been in effect during 1931, the total amount of exports no doubt would have been somewhat larger and the percentage of returns somewhat smaller.

As indicated in the foregoing discussion, the returns to producers per unit of hogs would consist of the basic price plus the price supplement. The probable amount to be refunded to hog producers and the indicated reduction in hog prices as a result of the assessment of the tax, lead to the conclusion that any increase in total returns to hog producers above what they would receive if the plan were not in operation would be small.

*Effect on production.*—In any discussion of production control as related to any of these plans, it is necessary, first, to distinguish between a prevention of expansion and a curtailment of production. The two concepts are different but are often confused. One of the arguments frequently advanced against both the equalization fee and the export debenture has been that they would stimulate production. In this study it has been pointed out that stimulation of production would result from an enhancement in the price of hogs resulting from either the equalization fee or the export debenture. Both of these plans aim to increase the price per unit of the individual producer's entire output. The domestic allotment plan, on the contrary, proposes not to increase the price, but to grant to the producer a price supplement, or bonus, per unit of a part of his total production. Herein lies a difference between the two types of proposals from the standpoint of their probable effect on production.

If the individual producer's allotment was fixed for the period of the operation of the plan, or for a specific period—for instance, four or five years—an increase in returns from hogs would create less incentive to increase production than would increased returns resulting from the operation of either the export debenture plan or the equalization fee plan. Assume, for illustration, a hog producer's domestic allotment to be 80 per cent of his total output in the past year or in a period of years on which the allotment would be based. Suppose also that, in the period upon which the allotment is based, he produces 9,000 pounds of live hogs—40 head with an average weight of 225 pounds—his allotment then would be 80 per cent of 9,000, or 7,200. If, in the first year of the operation of the plan, he sells 9,000 pounds, the same amount as in the base period, he would get his benefit payments on 7,200 pounds. If, in the following year, he increases his production to 10,000 or even to 12,000 pounds or more, he still would receive his allotment benefit on only 7,200 pounds. Thus, with a constant allotment for a period of years, the domestic allotment plan, even without a specific mechanism for curtailment of production,



might tend to discourage expansion of production by reason of not paying a premium on additional output. There would be far less stimulation of production as a result of this method of payment than under either the equalization fee plan or the export debenture plan. Both of these plans aim to enhance the price on every unit of the individual farmer's product, thus offering incentive for increased output. If allotments were made every year so that the individual producer might see an opportunity to get the benefits of a larger poundage of hogs in the second year by substantially increasing his output, there might, in this plan, also be a stimulus to increase production on the individual farm.

*Problems of administration.*—In administering the emergency agricultural relief plan it would be necessary to provide for collecting the tax from all slaughterers. This, it is proposed would be done by the collector of internal revenue. This tax would have to be collected not only from the slaughterers operating under Federal inspection but from other slaughterers as well, including retail slaughterers and farmers selling a portion of the hog products obtained from farm slaughter. It apparently would be necessary to provide for some means of licensing all plants engaged in commercial slaughter or requiring that all pork and lard be accompanied by a Government certificate or other evidence that the tax has been paid. With retail prices of hogs at levels sufficient for slaughterers to pay the excise tax from the margin between what they receive at wholesale and what would be paid for the live hogs, producers and local slaughterers, especially in deficit areas and near important centers of consumption, might find it tempting to evade the tax by selling hog products to retailers or by peddling to consumers. Preventing significant evasion of the tax would be an important problem. The requirement of a certificate or other evidence of legal sale perhaps could be so administered as to keep the volume of illegal sales at a reasonably low level, but to do so probably would constitute a significant item in the cost of administration.

The payment of the drawback on exports would present a difficult problem in applying the plan to hogs. If a separation could be made of hogs bought for domestic consumption and those bought for the export trade the administration of this part of the plan would be simple. However, no such separation can be made, since exports do not consist of dressed or cured carcasses, but of certain processed products only, the greater part of which is lard. Lard exports may equal the production from 15,000,000 head of hogs whereas pork exports may equal the cured pork production from only 1,000,000 head. There is a wide variation in prices of the various hog products. The yields of lard and of the different cuts vary to some extent because of changes in the relationship between prices of the different products and the weights of hogs marketed. A tax of 2 cents per pound on live hogs would be equivalent to an average tax of around  $3\frac{1}{2}$  cents per pound on the hog products. Apportioning the tax equitably among the various products in calculating the "drawbacks" would be a difficult task. However, this probably could be done with sufficient accuracy to make it no serious obstacle.



## VOLUNTARY DOMESTIC ALLOTMENT PLAN

The principles of the emergency agricultural relief plan and the voluntary domestic allotment plan are similar except for the production control features of the latter. Therefore, it is necessary here to supplement the analysis of the emergency agricultural relief plan with an examination of the provisions for reducing production, and to point out the important differences in the mechanics of administration.

The voluntary domestic allotment plan provides for the collection of a fund through the assessment of an excise tax on hogs slaughtered, just as does the plan that does not provide for a reduction of production. Payments to individuals, however, would be based on the share of domestic consumption of hog products allotted to each producer, based on his production for sale in previous years. Such payments would not be made to all producers, but only to those who would contract to reduce their production or sales as directed by the administrative board. Some drafts of the plan carry additional provisions directing that a vote of producers be taken to initiate the plan, and calling for votes on the extent of change in production the administrative board shall direct.

If this plan were successful in reducing production and if, as a result, hog prices and incomes to hog producers could be increased, then the application of the plans to hogs might be justified, and the features of the plan discussed in the foregoing section could be considered simply as part of the necessary mechanism for curtailing production.

The next step in this study, therefore, is to examine the problems of production curtailment, from the standpoint of probable effects and problems of administration.

*Some effects of production control.*—It was pointed out in Part II of this report that during the last decade the total amount paid to producers for hogs slaughtered has tended to be in inverse relation to the total live weight of hogs slaughtered. That is, assuming no material change in total consumer incomes, the smaller the number of hogs slaughtered the larger the total amount paid for these hogs; and the larger the slaughter, the smaller the total amount paid. This, however, is not in conflict with the indications that consumers, with a given level of incomes, have tended to spend about the same total amount of money for hog products regardless of the supply, and does not insure the same relationship between supply and returns if the supply were permanently reduced.

The difference in the relation between the supply and the total value in the live market and in the consumer market has been due largely to the fact that some of the per unit costs of marketing, processing, transporting, and distributing have remained fairly constant regardless of the supply handled. Thus, the total charges for processing and distributing the products during the postwar period usually have increased as supplies increased, and as a result, producers have tended to receive a smaller total amount of money for a large than for a small supply.

There is considerable question as to whether or not these postwar relationships would continue to prevail if supplies were reduced permanently. The quantity of hog products available for consumption has seldom been excessive or greatly deficient for more than two years in succession. Thus, it is reasonable to assume that, in the



years of small supplies with consumers accustomed to a higher level of pork consumption, they would be willing to make about the same total expenditure for the smaller supply as for the larger if they had approximately the same amount of money to spend. But if supplies should remain small for a longer period there would be a greater tendency for consumers to shift from pork to beef and other competing foods. This would result in a reduction in the consumer demand for hog products and hog prices would be brought more nearly in line with prices of competing foods. Under such conditions consumers would tend to spend a somewhat smaller proportion of their incomes for pork than during recent years.

Therefore, under a system of production curtailment for a considerable period of time, although hog prices would doubtless be higher, consumer expenditures for hog products might decrease and the total amount of money paid for live hogs might not be greatly different from the total amount paid for a large supply under conditions of fluctuating production.

If hog production were curtailed to a volume that would bring a relatively high price and (as is probable) to a volume relatively small to corn production, other adjustments would have to be made to dispose of the surplus of corn. The plan also aims to give the administrative body the authority to regulate corn and feed crop acreage, by including appropriate provision in the allotment contracts. But reducing feed-grain acreage does not end the matter, as this acreage would go into other uses—pasture and hay land, for example. Then the utilization of this increased pasturage and hay involves an increase in other kinds of meat animals or dairy cattle, with increased supplies of other meats and dairy products tending to offset the decreased supplies of hogs. It is evident, therefore, that the interchangeability of enterprises in the farming systems of this country, together with possibilities of substitution of other foods in consumer diets, would give rise to numerous and very difficult problems in attempting to obtain the desired results from curtailing hog production.

A control of production, if it were practicable, for the purpose of eliminating the marked fluctuations in production from year to year, thus bringing about a more orderly flow of products to market, would be of benefit to the industry. It would reduce the risks involved in processing and distributing hog products and make for greater efficiency in distribution. These economies should mean that producers would obtain a larger share of the consumers' expenditures for pork and lard. Stabilized production would tend to reduce price fluctuations but it would fall far short of eliminating them, because of the marked influence of changes in consumers' incomes. This is illustrated by the decline of more than 60 per cent in hog prices during the last three years with no material change in market supplies.

*Problems of administration.*—According to S. 4985, operations under the act shall be undertaken only in respect to any commodity that "is selling below pre-war purchasing power by reason of domestic production exceeding domestic consumption, or otherwise unduly depressing the price, and only when 60 per centum of the producers of the commodity have, by vote, indicated their willingness to cooperate in carrying out the necessary provisions of the act." If the required number of hog producers should vote to put the plan into operation, a production



allotment would be made to each individual grower, which in the case of hogs would be for an annual production of a specified tonnage of hogs to be sold, but no producer would be paid the tariff benefit unless he signed a contract for the control of his production. This contract is to provide that during the marketing year "in the case of livestock, that he (the producer) will not increase the number bred or fed or the pounds of livestock sold" and that "he will reduce the pounds of livestock sold, in any season by such percentages as the board may specify, not exceeding 10 per centum of that on which his allotment was based," and that in the case of livestock "the contract may control or restrict the acreage of corn and other feed crops, as well as the production and sale of livestock."

Some have expressed the opinion that in the case of hogs it would be desirable that more than 60 per cent of the producers, or the producers of 60 per cent of the total output of hogs, should vote in favor of the plan before it is put into effect. As high as 80 per cent has been suggested. The exact percentage voting on the application of the plan in order to give control of sufficient volume of the production is not of vital importance. As noted above, the tax would be largely deducted from the price of hogs. Hence, most commercial producers would elect to come under the plan. Hog prices at present low levels would make the tax a very large percentage of total income from hogs. A \$2 tax on the slaughter of \$3 hogs would make the difference between sharing and not sharing in the benefits of the plan too great for the individual producer to remain outside, especially if returns from hogs represented a significant proportion of his income. Yet there probably would be some producers who would not choose to sign the contracts required by this particular plan.

Securing a vote of 60 per cent of the hog producers, or of the farmers producing 60 per cent of hogs, would be a considerable task. Ballots would have to be printed and distributed and votes would have to be collected and tallied. The plan calls for an expression from producers on the production policy to be followed. This probably would involve a presentation to producers of various and probable consequences of different policies, and the advisable program to follow. All this would have educational value. The difficulties involved in securing the necessary votes probably would be at a minimum at this time, because of the extremely low prices of hogs now prevailing.

An elaborate organization would be necessary to administer the voluntary domestic allotment plan once hog producers voted that it be applied to hogs. It is estimated on the basis of census returns that approximately 4,500,000 farms produce hogs. This is about 70 per cent of all farms in the United States.

With 60 per cent of the producers of hogs required to indicate by vote their willingness to cooperate in carrying out the plan, the question arises as to who are to be considered as producers of hogs. A large proportion of farmers who raise hogs do not keep sows and raise pigs. If the voting were limited to producers who keep sows then only about one-third of the farmers who keep hogs would decide for the whole industry, while if all farmers who have hogs at some period of the year are included, the decision might well be determined by the action of men who have little interest in the industry. If, to avoid this latter situation, voting were based upon the number of hogs or of sows kept, it might easily be possible for the west North Central



States to vote the plan into effect, contrary to the desire of other sections of the country.

Assuming approval of the plan by whatever method of voting might be decided upon for determining the wishes of the producers, the next problem would be to determine and to distribute allotments for individual producers. Decision as to whether the allotments should be made to individuals or to farms would give difficulty in applying the plan to hogs. In the east North Central States, in 1929, over 27 per cent of all farms were operated by tenants and in the west North Central nearly 40 per cent. In Iowa, the leading hog-producing State, 47 per cent of the farms were thus operated. A large part of these tenants operate on short-term leases, their changes from farm to farm are very frequent, and the change in the personnel of tenants in many localities is rapid. If a material proportion of the allotments were distributed among this rather unstable group, it would undoubtedly increase the difficulties of administering such a plan. Allotments by farms would tend to simplify administration but would add greatly to the rigidity of the plan. Allotments by farmers would make the administration much more complicated, but the plan would be more flexible and better adapted to farming practices.

Distribution of allotments among counties in the States could not be made accurately on the basis of data now available from the census returns and in the United States Department of Agriculture except perhaps in States where assessors get data regarding individual farms. The department now makes yearly estimates of total production in terms of live weight for each State, but for many States these estimates are based upon a rather limited sample of data; for the important producing States where most of the production goes into market movements and commercial slaughter the estimates are based upon fairly accurate records. These estimates are made only for States as a whole and not for individual counties.

The census provides data as to the numbers of hogs on farms by counties and minor civil divisions at the time when the census was taken. The numbers of hogs on farms on a given date may be used as some indication of distribution by counties and minor civil divisions, but do not provide an accurate measure of production. The 1930 census also secured some data as to hogs sold and bought in 1929. These census data, however, are in terms of numbers of animals and not of weight. Another complication arises out of the shipments or transfers of pigs to feeders to be finished for market. The annual estimates of production by States, together with data available from assessors' records in some States and the data provided by the census, could be used as a basis for making allotments to States and counties, but it might be found very difficult to obtain a balance between the totals of individual farmers' sales records by counties, and the estimates built upon other records for use in determining the allotments to the State and the counties within the State.

It is proposed to determine individual allotments on "average production for sale, in each of the past five years on the land farmed at the time of such determination by each producer in each county." Few, if any, farmers have exact records, and in view of the relatively large movement of stock and breeding hogs among farmers in the same locality, it would be very difficult to determine who actually produced



the hogs for final sale for slaughter. Any reasonably accurate determination of production by individual producers for a single year preceding the operation of the plan would present many difficulties, although it would be by no means impossible; and determining a 5-year average for each producer would be a very large undertaking. It would involve farm-to-farm determination, checking of sales records where they were available, and any other means that might be found for determining individual production. In the voluntary domestic allotment plan it is proposed that allotments be made by the national administrative agency to the States, by State boards to the counties, by county boards to townships or other minor civil divisions, and by local bodies to individual producers. It is claimed, and with good reason, that this would be superior to having allotments made direct under the authority of the national administrative agency. The plan of decentralization would make for local responsibility and would have an element of self-policing. The allotment for the township or the county would be a fixed amount and the allotment records of all producers would be available for public inspection.

The amount of administrative machinery required for making the initial allotments is indicated by the organization that would be necessary in a leading hog-producing State like Iowa. There are 99 counties in the State and these average about 16 townships per county. The 1930 census reports 164,000 farms as having brood sows in April of that year and the number of farms reporting hogs in January in both 1920 and 1925 exceeded 180,000. This gives an average of about 1,800 hog farms per county and over 100 per township.

The proposed machinery for administering the plan would require in the State of Iowa a State board, 99 county boards, and some 1,600 township committees. On the average the local (township) committees would have to examine the claims of 100 or more farmers as to allotments and make up records for permanent use of the supporting data furnished by each farmer. To make tentative recommendations of allotments with the records of supporting evidence would require several days for each local committee consisting of at least three members. These records from the local committees would have to be examined by the county board, and the sum of the recommended local allotments would have to be adjusted to equal the county allotments, assuming that the county allotments were made by the State board before the records of the local and county committees were available. This would mean that each county board would have to make up a past record of some 1,800 producers, with provision for future records which would show detailed production and sale figures for each producer.

#### THE "NATIONAL EMERGENCY ACT"

(A modified form of the domestic allotment plan as embodied in H. R. 13991, 72d Cong., 2d sess.)

Since the main body of this report was prepared, the "national emergency act" (H. R. 13991) has been passed by the House of Representatives (January 12, 1933). As this bill contains a new version of the domestic allotment plan, it lies within the scope of the Senate resolution under which this report has been prepared, to add a brief



section on the plan as included in this bill. This measure, like the other variants of the domestic allotment plan, has different possibilities with respect to different commodities. This section, however, will be confined to the relation of this measure to hogs, as the report deals only with the application of the various farm-relief plans to the hog industry.

The general aim of this bill is substantially the same as of the earlier versions of the domestic allotment plan. Some of the specific provisions of this bill, however, are quite different.

The objective of this bill is to establish and maintain "fair exchange value" for each unit of the commodity required for domestic consumption, that is, returns per unit equal to pre-war purchasing power in terms of commodities bought by farmers. This, it is proposed, would be done by adding to the average of prices received by the producers of the specified commodities, a supplemental amount called "fair exchange allowance" which would make the total returns per unit of that portion of the commodity required for domestic consumption equal in exchange value to the average of prices received in the pre-war period, September, 1909, to August, 1914.

Adjustment certificates would be issued to producers of the commodities included in the plan only upon application by the producer, accompanied by proof satisfactory to the Secretary of Agriculture that the producer has complied with the requirements of the law. Such certificates would be issued only on a portion of the individual producer's sales of his hogs for slaughter bearing the same relation to the total tonnage of his sales that estimated domestic requirements of hog products bear to total domestic production. This relationship the bill calls the "domestic consumption percentage."

The face value of the adjustment certificates would be equal to the "fair exchange allowance" of the commodity at the time of marketing minus a pro rata share of administrative expenses, which the measure limits to  $2\frac{1}{2}$  per cent of the total taxes collected on all specified commodities. The fair exchange allowance would be "the difference between the prices received for the commodity by producers at local markets and the fair exchange value for the commodity." The fair exchange value for hogs would be 5 cents per pound during the period beginning 30 days after the date of approval of the act and terminating at the beginning of the 1933-34 marketing year. Beginning with the 1933-34 marketing year, the fair exchange value would be 6 cents per pound, plus an additional one-half cent per pound per each 10-point rise in the index of factory employment over the index number therefor on the date of approval of the act, as published by the Federal Reserve Board. The purpose of the latter provision is to increase the "fair exchange value" with the rise in purchasing power of consumers. If and when, through this means, the fair exchange value reaches an amount which will bear the same relationship to prices of commodities bought by farmers as hog prices at local markets bore to prices of commodities bought by farmers during the pre-war period, September, 1909, to August, 1914, then such value would be established at that relationship thereafter.

An excise tax on hogs slaughtered would be collected from slaughterers just as under the other versions of the plan. The rate of tax, however, would be a variable, rather than a constant, amount. It



would be equal to "the difference between the price received for hogs by producers at local markets and the following amounts":

- (1) 3½ cents per pound during the period beginning the day following the date of approval of the act and ending April 30, 1933.
- (2) 4 cents per pound from May 1, 1933, to June 30, 1933.
- (3) 4½ cents per pound from July 1, 1933, to the end of the 1932-33 marketing year.
- (4) Beginning with the 1933-34 marketing year, 6 cents per pound or more according to the fair exchange value then in effect.

No tax would be levied on the processing of hogs by producers if the sales of products obtained from such processing did not exceed \$100 per year for the individual producer taking advantage of this provision. Exporters would receive drawback payments equivalent to the tax on the poundage of live hogs yielding the products exported just as provided for in the other versions of the plan. Stocks of hog products in storage on the date the tax on hogs slaughtered becomes effective or is changed would be subject to the tax or change in the tax.

Under H. R. 13991, the Secretary of Agriculture would administer all phases of the plan except the collection of the tax, which would be collected by the Bureau of Internal Revenue under the direction of the Secretary of the Treasury. The plan is considered as an emergency measure, and the bill provides that the operation of the plan may be extended through the 1934-35 marketing year upon proclamation by the President of the United States.

The Secretary of Agriculture would be given broad powers in setting up such administrative machinery as he deemed necessary for carrying out the provision of the act. He would estimate in advance the production of hogs for marketing and the percentage of that production needed for domestic consumption. He would determine the period during which production of the commodity would be considered as normal in the various producing areas, and which, therefore, would give the base for determining whether the producer is entitled to an adjustment certificate.

The Secretary of Agriculture also would prescribe regulations as to the proof which he would deem satisfactory as a basis for issuing adjustment certificates. The Secretary would have two general courses of procedure. One would be to place upon the individual producer all the initiative and responsibility for presenting the specified evidence as to production for market in the base period and in the marketing period for which the benefits are claimed. In effect, this method would amount to full acceptance of the producer's statement or affidavit as to his production in previous years. This procedure would greatly reduce the necessary organization to administer the plan, but the opportunity for evasion and avoidance of the conditions and requirements of the law would be far greater.

The alternative would be to check the statements submitted by the producers against evidence that could be collected as to his production, such as records of sales, and require that he submit definite proof of the accuracy of the statements and data. This would reduce the opportunity for evasion, although there still would be considerable possibility of error. This bill, unlike earlier versions, does not provide for county or township allotments limiting the total of the individual allotments within a specific area. Hence this bill does not appear to utilize community interest in arriving at individual allotments, unless the Secretary of Agriculture, under the broad



powers conferred upon him by the measure, should be able to make fixed allotments for any given period to States, counties, and minor civil divisions. He is specifically authorized (sec. 20, b), however, to transfer money to any agency of any State or any political subdivision to pay expenses incurred in the administration of the measure. This may be construed to imply powers not specifically stated with respect to determining allotments.

The problems involved in determining allotments may be summed up by saying that although the machinery for this phase of the operation of the plan could be simplified under the provisions of this bill, such simplification probably would be at the expense of less effective enforcement. In view of the nature of the hog industry and because of the fact that hog producers number about 4,500,000 and are found in every State, it would be necessary either to set up an elaborate and costly machinery of enforcement or to face a large amount of noncompliance with the terms of the law and administrative regulations promulgated under it.

It seems fairly certain that any reduction in total hog slaughter would be much less than the amount implied by the required 20 per cent reduction on individual farms, considering the rigid and minute requirements for securing the benefits, and in view of possibilities of avoiding the tax through exemptions as to farm slaughter and of erroneous reporting of actual production.

In order to obtain a certificate on hogs sold prior to the beginning of the 1933-34 marketing year, the producer would be required to submit proof that his tonnage of hogs for sale in the marketing period is 20 per cent less than the average tonnage sold by him in the year or years considered by the Secretary as normal for the area. In order to obtain a certificate on hogs sold during the 1933-34 marketing year it would be necessary for the producer not only to reduce by 20 per cent his tonnage of hogs sold, but also to reduce his corn acreage during 1933 by 20 per cent if he produces any corn, and producers of hogs in the Corn Belt generally grow corn. In addition, the producer is required to present proof satisfactory to the Secretary of Agriculture that he produced for sale no more dairy products than in the preceding year or period. The purpose is to prevent any part of the acreage withdrawn from corn production from being used to increase the production of dairy products. Finally he would be required not to put any of this land withdrawn from corn production into the production of "any commodity of which, in the opinion of the Secretary (of Agriculture), there is normally produced or is likely to be produced an exportable surplus, \* \* \*." The measure specifies, "It shall be the duty of the Secretary of Agriculture to determine and make public the commodities that may be produced in various regions upon land representing acreage reduction under this act without violating the requirements of this paragraph."

These rigid requirements, under which the individual producer would be called upon to surrender a large part of his freedom of choice as to what to produce on his land in order to get the proffered benefits, probably would cause many producers not to avail themselves of the plan.

Because of the provision for tax exemption on the sale of hog products by individual producers in an amount not to exceed \$100 per year, it is probable that only a very small proportion of hog producers



outside the Corn Belt would come into the plan especially at present hog prices, and it is probable that a smaller proportion of producers in the Corn Belt would apply for benefits under this measure than under the earlier form of the plan. If a producer could obtain \$6 per 100 pounds dressed weight for hogs slaughtered by him, the exemption would permit the sale of about 10 hogs per farm. This provision would tend to stimulate hog production in deficit-producing areas and thus restrict the outlet for hogs produced in areas of surplus production. Hence, hog production would be encouraged in areas less suited for this form of enterprise and discouraged in areas better adapted for it. All producers in surplus areas could not take full advantage of the exemption on the sale of hog products up to \$100 in value, since the hog products would have to be disposed of in local markets.

The tax on hogs slaughtered would vary with the price of hogs "at local markets." The language of the bill does not indicate clearly what is meant by "prices at local markets." It might be interpreted to mean that the tax would be determined by the difference between the price of hogs in the locality from which they originate and the amounts specified in section 10 (a) or the difference between the price and the "fair exchange value" as computed under section 9 (e), as the case may be. It appears probable, however, that the words "prices at local markets" are intended to mean the United States average farm price on the 15th of the month as estimated by the United States Department of Agriculture. The bill does not specify clearly the basis for determining prices at local markets. It is stated that "fair exchange value" shall mean purchasing power in terms of price paid by producers for all commodities bought by them "during the last three months period for which index numbers are available," but it is not clear whether an average of such period should be used and, if so, what kind of average. Such uncertainties, however, are minor and could easily be taken care of by perfecting amendments.

If the reduction in supplies should not be sufficient to exert a price-raising influence equivalent to the amount of the tax, the basic price would decline because of the inability of slaughterers and retailers to pass the tax on to consumers. The decline in prices would, in turn, cause the tax to increase, since it is provided that the tax shall be the difference between "prices at local markets" and the specified amounts in section 10 (a) or as provided for in section 9 (e). It is intended that any reduction of the price by reason of the tax would be offset by a larger "fair exchange allowance." This sequence would continue so long as the reduction in supplies or improvement in demand, or both, were insufficient to cause hog prices to rise by the amount of the increase in the tax. The increase in the tax as the "prices in local markets" declined, would create a greater incentive for producers to enter the plan, and this would tend to reduce market supplies.

The ultimate effect of determining the tax by this method is very uncertain. In the long run, the fair exchange value of hogs would be the minimum per unit cost to processors for that proportion of the hog supply consumed in this country. This minimum cost, made up of the price paid producers plus the tax, would be 6 cents per pound or more, depending upon the index of factory employment during the 1933-34 marketing year.



It might be assumed that the price to producers of hogs would not be depressed materially, if at all, by the tax levied on slaughterers below what the price would be if the plan were not in operation. The supposed reason is that there would be no incentive for the slaughterer to offer a lower price for hogs, as in doing so he would have to pay a higher tax in order to maintain the "fair exchange value" of the commodity. This assumption, however, appears untenable. The fair exchange value, which would be, in effect, a minimum cost to processors for hogs slaughtered for domestic consumption, would greatly curtail the amount of hog products consumed, especially at the present level of consumer buying power and present prices of substitutes. If hog prices should remain at about the level that would prevail if the plan were not in operation, the supply of hogs that would come to market would exceed the quantity that would be consumed in this country, even if the plan succeeded in curtailing production materially. The excess supplies could be disposed of in foreign markets only at prices far below the prices that would be received for the amount exported if the plan were not in operation. This, in turn, would cause the domestic price of hogs to fall to a level corresponding to the low price of the increased exports.

It would be impossible, therefore, to prevent hog prices from being depressed as a result of the tax, regardless of whether processors would prefer to pay a higher price and a smaller tax or a lower price and a larger tax in maintaining the "fair exchange value" of hogs. During the World War a definite level of hog prices was successfully maintained, but this was accomplished with unprecedented war demand including vast purchases of hog products by the United States Government and by the Allies.

The basic price of hogs over a period of a year or more, therefore, would be determined in world markets. If that amount of our production which exceeds domestic consumption at a cost of hogs equivalent to the "fair exchange value" could not be disposed of in foreign markets because of international trade barriers or other obstacles to our export trade, then there would be no sale for some of the hogs especially in surplus producing areas. Processors would endeavor to obtain their hogs in the areas nearest to the centers of consumption.

Unless domestic demand should improve materially, the exportable surplus in 1933-34 under the operation of this plan would exceed the present one, even though production were reduced 20 per cent below the average of the last five years. The foreign demand for United States hog products is at an extremely low level, due to increased foreign hog production, reduced consumer buying power, and international trade restrictions of various kinds. Market supplies of hogs in foreign countries during the next year or two probably will be smaller than in 1932, but foreign restrictions now in effect have already limited exports of hog products and additional restrictions now under consideration may further limit the possibilities of increased exports. Furthermore, a marked stimulation of exports under the operations of the plan would increase the dangers of retaliatory action by foreign countries, and such stimulation of exports would occur if the reduction in production should be less than the decline in consumption as a result of the tax.

Frequent changes in the tax rate, which would apply to storage stocks as well as hogs slaughtered, would inject uncertainty into the



business of processing and merchandising hog products. Processors would tend to keep storage stocks at a minimum. Thus a larger proportion of the supply would be thrown into consumer channels as fresh pork during the seasons of the year when marketings are normally large and processors accumulate products in storage to dispose of during other seasons when supplies are relatively small.

## APPENDIX A

### PRINCIPAL METHODS AND AGENCIES INVOLVED IN MARKETING OF HOGS AND DISTRIBUTION OF HOG PRODUCTS

#### HOG MARKETING

Methods of marketing hogs vary considerably in different parts of the country. Even in one community several methods of disposal are ordinarily followed by producers at a given time. Furthermore, hog producers are constantly trying out new methods and practices in their efforts to obtain the greatest net returns.

In the commercial hog-producing areas, farmers usually market their hogs by two general methods: (1) Consignment to a commission firm located at a public market and sale through that agency to a packer or packer representative; (2) sale direct to packer, that is, to a packer-buyer at the farm or special assembling point, or by consignment or delivery direct to a packing plant. Numerous variations of these two methods of marketing exist, and intervening agencies between producer and packer are not always the same under either method.

Although some farmers make individual carload shipments of hogs to the organized public markets, of which about 90 are in operation, the most common practice is to sell locally or cooperatively. Shipments to the public market are then made by the local buyer or by the cooperative marketing associations. The activities of the local cooperative livestock shipping associations have been greatly curtailed during the last five or six years, largely because of the expansion of direct buying by packers and the rapid development of the trucking of livestock to market.

Centralized livestock markets for the most part are located in or near areas of heavy livestock production, and usually one or more slaughtering and meat-processing establishments are near them. Important agencies on the public markets, aside from slaughterers and processors, are the stockyards company, the commission firms, order buyers, and speculators or traders. The stockyard company provides the facilities for physical handling and care of the livestock.

Its revenue comes from the rental of pens and the sale of feed. The livestock commission merchant sells livestock for persons who have livestock for sale and buys livestock for those who wish to make purchases. Commission men do not acquire ownership of the livestock consigned to them, but dispose of it as representatives of the shippers. Since 1921, the rates charged by livestock commission merchants have required the approval of the packers and stock yards administration of the United States Department of Agriculture. Commission agencies for the cooperative selling of livestock are now established at the principal terminal markets. At present there are 37 cooperative terminal selling agencies operating on 28 public markets. Order buyers are agents who represent packers and other livestock buyers on public markets. The rates and business rules under which they operate are established in the same way as are those



for commission men. Other operators on the central markets are buyers in the employ of packers, and traders who buy and sell livestock for their own account with a view to making a profit on their operations.

Keen competition usually prevails at the public markets. The extent of this competition is indicated by data contained in the testimony submitted at the hearing for the modification of the packer consent decree before the Supreme Court of the District of Columbia in 1930. These data showed that there are approximately 300 outside packers at Chicago who are constantly bidding for livestock either through their own buyers or through order buyers. There are 100 in East St. Louis, 100 in Indianapolis, 80 in Omaha, 50 in Cincinnati, 50 in Louisville, 60 in Montgomery, and 50 in Nashville.

An important development in livestock marketing during recent years has been the expansion in direct marketing. The term direct marketing refers to sales of livestock to packers other than those through commission agencies on public markets. Marketing hogs direct to packers has increased rapidly since 1926. Approximately 24 per cent of the hogs slaughtered by packers in 1925 was purchased direct. This proportion has increased rapidly since that year, and in 1932 it reached 43 per cent of the total. Some of the increase in direct buying of hogs since 1926 has been the result of an expansion of the business of interior packers (packers in the principal hog-producing areas located elsewhere than at public markets), but the major portion of it has been the result of the practice instituted by some of the large packers of establishing buying agencies in producing areas for the purchase of part of the supplies utilized at their plants which are located in cities that have public stockyards. Direct marketing is of greatest importance in the northwestern Corn Belt, the leading hog-producing area of the United States. In Iowa, where about one-fourth of the commercial supply of hogs is produced, about 60 per cent of all hogs sold are marketed direct to packers.

Direct buying of hogs by packers is carried on in several ways. Farmers, local buyers, and cooperative marketing associations frequently consign or deliver hogs to interior packers or to packers located at a public market. This method is especially important in case of interior packers, since nearly all of the hogs they buy are purchased direct. Probably the predominating type of direct marketing is the purchase of hogs by packers at concentration yards. Such yards are established at convenient and strategic points in hog-producing areas (mostly in Iowa and Ohio) for the purchase and assembly of hogs delivered by farmers or forwarded from local loading stations. Concentration yards are operated largely by packers who have slaughtering plants at public markets, although in some instances they are operated by cooperative marketing associations and by private buyers. Hogs purchased and assembled at a concentration yard operated by a large packer are shipped to the concern's own slaughtering plants, whereas those handled at yards operated cooperatively or privately are sold to any packer who wishes to buy them.

Slaughtering of hogs on the farm and selling pork direct to consumers is usually an unimportant method in the commercial hog-producing areas. The selling of hogs to retail butchers also is relatively unimportant in commercial areas. The trend of farm and retail slaughter has been sharply downward during the last 20 years,



although in 1931 and 1932 an increased proportion of the hog supply was slaughtered locally in all sections as a result of low-hog prices and a tendency for farmers to get on a self-sufficing basis. Retail slaughtering is conducted most extensively in Ohio, Pennsylvania, and some of the southern and Pacific Coast States.

The auction method of selling hogs has been used with success in the Southeastern States and in a number of other areas where public markets and other forms of competitive selling are not readily available, but the total volume of such sales is relatively small.

#### TRANSPORTATION AND PROCESSING OF HOGS AND HOG PRODUCTS

Railroads, from their early development in the "fifties" until after the close of the World War, were the primary means of transporting livestock. For many years developments in livestock transportation were limited to improvements in types of railroad cars, to faster schedules, and to improved service in general. During recent years, however, the motor truck has come into extensive use in shipping livestock. About 55 per cent of the hogs received at 17 of the more important public markets in 1932 were delivered by truck. This shift from rail to motor-truck transportation has been made possible by the building of improved public highways and the development of more efficient motor trucks.

About two-thirds of the total number of hogs slaughtered annually are killed in packing plants having Federal inspection.<sup>8</sup> The other one-third represents chiefly farm and retail slaughter. About 320 slaughtering establishments operated under Federal inspection during 1931. The number of such plants has not changed greatly during the last 25 years. A marked change in the geographical areas of hog slaughter has occurred since 1908. The proportions slaughtered in the North Atlantic States, eastern Corn Belt States, and southwestern Corn Belt States, have declined, whereas the proportion slaughtered in the northwestern Corn Belt has increased materially.

The dressed weight of hogs slaughtered under Federal inspection is about 76 per cent of the live weight although the proportion varies somewhat according to changes in live weight. The principal wholesale cuts of pork and the rendered lard are the equivalent of about 79 per cent of the dressed weight and about 60 per cent of the live weight. The remaining 40 per cent consists of minor products, by-products, shrinkage, and waste.

Hog products in trade channels consist of fresh and cured pork lard, and various by-products. The principal kinds of cures are sweet pickle, dry salt, and dry cure. The cuts that are ordinarily sold as fresh pork are loins, shoulders, Boston butts, picnics, some hams, and, to a limited extent, bellies. Practically all of the hams, part of the sides, and a few other processed products, are cured as sweet-pickled meats. These are cured in a pickling fluid of water, salt, sugar, and saltpeter. Dry-salt meats are cured in stacks or piles, the meat being rubbed with dry salt. This cure is most commonly used for the coarser grades of bellies. The dry-cure process is used chiefly for the curing of high-grade bacon. Meat thus cured is rubbed with salt, sugar, and saltpeter and then packed in pressure

<sup>8</sup> Federal inspection is required in all livestock-slaughtering and meat-processing establishments engaged in preparing meats and meat products for interstate commerce.



tanks. In the early days of meat packing, much pork was packed in a pickling fluid ("plain brine") and was shipped in that condition as barreled pork. Fat backs and heavy sides were the principal cuts so packed. The trade in barreled pork has practically disappeared.

#### WHOLESALE DISTRIBUTION OF HOG PRODUCTS

The wholesale distribution of hog and other packing-house products is made through the wholesale departments, branch houses, car routes, and truck routes operated by the slaughterers, and through brokers. The wholesale departments distribute products to the local retail meat trade. Branch houses are selling agencies located in the larger towns and cities, and may be considered as extensions of the wholesale market system. They are owned or leased, and are operated, by the packers. The large number of small towns that are not provided with branch houses are usually served by car routes or truck routes. A car route consists of a series of towns located along a railroad line that serves a plant or branch house. At regular and frequent intervals a salesman visits these towns and takes orders from the retail meat dealers, and at similar intervals shipments are made to these towns. Truck routes are handled in much the same manner as are car routes.

Although hog products are distributed in the United States by a large number of packers, dealers, local slaughterers, and farmers, relatively few of those engaged in the packing industry do an export business. Any packer who operates under Federal inspection can export hog products, but at least 75 per cent of this business is done by eight concerns.

Small packers who export hog products only intermittently often sell such products to a domestic broker who in turn may sell the product through an export broker who arranges for delivery to one of his foreign connections. Exports handled in this way represent a very small proportion of the total. In more common practice the small packers deal directly with one or more export brokers. The Webb-Pomerene Act (enacted in 1918) permits small packers to combine for the purpose of engaging in export trade, and the American Provisions Export Corporation was organized under the provisions of this act. The packing companies that regularly engage in export trade have their own foreign agents located in the principal foreign markets. The agency contract usually requires that the agent sell only the products of the one company and that he sell at prices furnished him by the company and on terms agreed to by the company. The large packing companies have branch houses in a few of the foreign markets in order to insure the proper handling of their products; in such cases the packers have complete jurisdiction over their foreign sales.

#### RETAIL TRADE IN PORK AND LARD

The retail distribution of pork and lard is carried on in a large number of different types of shops.\* These may be listed as straight meat markets, combination meat and grocery stores, meat sections in department stores, and stalls in public markets. The straight meat market and the combination meat and grocery store may be independently owned or may be a part of a chain-store system. Delicatessen stores and grocery stores handle cured, prepared, and canned

meats, but not fresh meat. The combination meat and grocery stores are the most numerous, as they have increased during recent years, primarily on account of the rapid expansion of national grocery chains that handle meat. Many independent grocers have found it advisable to add meat sections to their stores so as to meet chain-store competition more effectively.

Retail dealers supply an essential link in the meat-distributing system whereby products pass from the producer to the ultimate consumer. They receive the meat in the form of carcasses or wholesale cuts, maintain a variety on display from which the consumer may make his selection, cut the meat to suit the requirements of the buyer, and may deliver it to the consumer's home and allow charge accounts. Formerly the operator of a local meat market bought the animal and he or his assistants slaughtered it and prepared the carcass for sale. Now that the packing industry is so well developed, the retail dealer usually obtains his supply of meats from the wholesaler in the form of carcasses or wholesale cuts.

A recent development in meat merchandising has been the centralized cutting, quick-freezing, and packaging of meat. Cutting is done in packing plants or wholesale establishments. The meat is wrapped in cellophane which enables the customer to select the desired cut from a display. This method makes it unnecessary to have expert meat cutters in individual shops, since the cutting can be done for a group of stores by a small number of cutters at a centralized point. The quick-freezing process was first used in the handling of meat about 1929 and is still in the experimental stage.



# APPENDIX B

## STATISTICS PERTAINING TO HOGS AND HOG PRODUCTS

TABLE 1.—*Hogs: Number on farms January 1, 1910–1932*

[Thousands]

Year	United States	Corn Belt <sup>1</sup>	Eastern Corn Belt <sup>2</sup>	Year	United States	Corn Belt <sup>1</sup>	Eastern Corn Belt <sup>2</sup>
1910.....	49,300	27,578	10,208	1922.....	59,849	38,799	13,409
1911.....	55,700	31,938	11,953	1923.....	69,304	48,677	16,057
1912.....	55,700	31,817	11,582	1924.....	66,576	48,165	15,592
1913.....	54,000	31,482	11,629	1925.....	55,770	40,442	12,700
1914.....	51,800	29,765	11,595	1926.....	52,085	37,872	11,942
1915.....	57,000	32,809	12,679	1927.....	55,468	40,010	12,711
1916.....	59,700	36,366	13,591	1928.....	61,772	54,254	13,620
1917.....	56,700	33,221	12,621	1929.....	58,789	42,226	12,520
1918.....	61,200	37,371	13,901	1930.....	55,301	39,992	11,182
1919.....	63,800	38,816	14,865	1931.....	54,374	39,839	11,104
1920.....	60,159	36,293	14,328	1932 <sup>3</sup> .....	59,511	42,689	13,231
1921.....	58,942	36,984	14,146				

<sup>1</sup> Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas.

<sup>2</sup> Ohio, Indiana, Illinois, Michigan, and Wisconsin.

<sup>3</sup> Preliminary estimate.

Estimates of number of hogs on farms by the Division of Crop and Livestock Estimates, Bureau of Agricultural Economics.

TABLE 2.—*Hogs: Number slaughtered under Federal inspection, and estimated total number slaughtered, 1900–1932*

[Thousands]

Year	Under Federal inspection <sup>1</sup>	Total <sup>2</sup>	Year	Under Federal inspection <sup>1</sup>	Total <sup>2</sup>
1900.....	29,294	50,470	1917.....	33,910	56,901
1901.....	31,129	51,870	1918.....	41,214	64,796
1902.....	26,375	48,260	1919.....	41,812	65,190
1903.....	26,971	47,900	1920.....	38,019	61,890
1904.....	30,072	49,987	1921.....	38,982	62,957
1905.....	31,855	51,540	1922.....	43,114	68,105
1906.....	31,610	52,680	1923.....	53,334	79,843
1907.....	32,885	54,058	1924.....	52,873	79,631
1908.....	38,643	60,515	1925.....	43,043	68,294
1909.....	31,395	53,220	1926.....	40,636	65,779
1910.....	26,014	47,076	1927.....	43,633	69,250
1911.....	34,133	56,646	1928.....	49,795	76,593
1912.....	33,053	55,564	1929.....	48,445	74,945
1913.....	34,199	57,046	1930.....	44,266	70,390
1914.....	32,532	55,501	1931.....	44,772	71,157
1915.....	38,381	62,017	1932.....	45,245	-----
1916.....	43,084	67,613			

<sup>1</sup> Data for 1900–1906 represent the estimated equivalent of slaughter under Federal inspection; 1907–1932, compiled from reports of the Bureau of Animal Industry.

<sup>2</sup> Compiled from Statistics of Meat Production, Consumption, and Foreign Trade of the United States, preliminary report, Bureau of Agricultural Economics.

TABLE 3.—*Pork and lard: Estimated production in the United States, 1900–1931*  
[Million pounds]

Year	Pork production, dressed weight		Lard production		Year	Pork production, dressed weight		Lard production	
	Total	Under Federal inspection	Total	Under Federal inspection		Total	Under Federal inspection	Total	Under Federal inspection
1900-----	5,912	2,728	1,617	821	1916-----	7,386	4,660	1,849	1,159
1901-----	5,895	2,752	1,614	829	1917-----	6,139	3,650	1,557	926
1902-----	5,334	2,527	1,439	737	1918-----	7,854	4,987	1,983	1,260
1903-----	5,465	2,543	1,496	766	1919-----	7,832	4,991	2,039	1,323
1904-----	5,867	2,819	1,596	841	1920-----	7,455	4,539	2,056	1,321
1905-----	5,748	2,739	1,551	799	1921-----	7,645	4,730	2,114	1,379
1906-----	5,976	2,930	1,644	882	1922-----	8,260	5,157	2,357	1,575
1907-----	6,333	3,763	1,777	1,137	1923-----	9,595	6,351	2,783	1,971
1908-----	6,617	4,135	1,790	1,171	1924-----	9,279	6,057	2,746	1,923
1909-----	6,024	3,545	1,504	886	1925-----	8,255	5,235	2,223	1,452
1910-----	5,649	3,112	1,434	792	1926-----	8,181	5,099	2,324	1,513
1911-----	6,596	3,977	1,673	1,010	1927-----	8,533	5,495	2,356	1,557
1912-----	6,407	3,802	1,626	965	1928-----	9,387	6,069	2,594	1,750
1913-----	6,622	3,958	1,681	1,006	1929-----	9,223	5,911	2,598	1,763
1914-----	6,530	3,815	1,657	969	1930-----	8,809	5,544	2,344	1,521
1915-----	6,971	4,253	1,775	1,081	1931-----	8,907	5,609	2,385	1,554

Compiled from Statistics of Meat Production, Consumption, and Foreign Trade of the United States, preliminary report, Bureau of Agricultural Economics.

TABLE 4.—*Pork and lard: Estimated total and per capita consumption in the United States, 1900–1931*

Year	Pork consumption		Lard consumption		Year	Pork consumption		Lard consumption	
	Total	Per capita	Total	Per capita		Total	Per capita	Total	Per capita
	<i>Million pounds</i>	<i>Pounds</i>	<i>Million pounds</i>	<i>Pounds</i>		<i>Million pounds</i>	<i>Pounds</i>	<i>Million pounds</i>	<i>Pounds</i>
1900-----	4,927	64.7	1,002	13.2	1916-----	6,055	60.1	1,368	13.6
1901-----	4,896	63.0	1,002	12.9	1917-----	5,037	49.3	1,195	11.7
1902-----	4,584	57.8	932	11.7	1918-----	5,684	54.8	1,374	13.3
1903-----	4,801	59.3	955	11.8	1919-----	5,755	54.8	1,292	12.3
1904-----	5,185	62.8	1,025	12.4	1920-----	6,437	60.5	1,416	13.3
1905-----	4,950	58.8	843	10.0	1921-----	6,886	63.5	1,223	11.3
1906-----	5,128	59.7	959	11.2	1922-----	7,260	66.1	1,558	14.2
1907-----	5,628	64.4	1,183	13.5	1923-----	8,338	74.7	1,707	15.3
1908-----	5,884	66.1	1,203	13.5	1924-----	8,492	74.7	1,749	15.4
1909-----	5,455	60.1	1,042	11.5	1925-----	7,794	67.6	1,522	13.2
1910-----	5,267	57.1	1,052	11.4	1926-----	7,690	65.7	1,584	13.5
1911-----	6,046	64.5	1,063	11.3	1927-----	8,122	68.5	1,634	13.8
1912-----	5,873	61.8	1,068	11.2	1928-----	8,863	73.9	1,763	14.7
1913-----	6,077	63.0	1,100	11.4	1929-----	8,836	72.8	1,735	14.3
1914-----	6,102	62.3	1,192	12.2	1930-----	8,541	69.3	1,701	13.8
1915-----	5,908	59.5	1,281	12.9	1931-----	8,636	69.6	1,784	14.4

Compiled from Statistics of Meat Production, Consumption, and Foreign Trade of the United States, preliminary report, Bureau of Agricultural Economics.



TABLE 5.—*Hogs: Average and total live weight, average live cost, and total value of slaughter under Federal inspection, 1921-22 to 1931-32*

Year beginning October—	Live weight		Average live cost	Total value of hogs slaughtered
	Average	Total		
	<i>Pounds</i>	<i>Pounds</i>		
1921-22.....	226.75	9,156,912,265	\$9.06	\$829,767,389
1922-23.....	226.02	11,439,505.753	7.98	912,621,072
1923-24.....	223.68	12,012,974.288	7.41	890,031,798
1924-25.....	221.60	10,257,755.286	11.18	1,146,575,894
1925-26.....	237.57	9,776,104,350	12.29	1,201,264,325
1926-27.....	232.29	10,008,880,153	10.71	1,071,952,042
1927-28.....	228.47	10,822,995.199	9.24	1,000,131,005
1928-29.....	231.24	11,320,783,514	10.03	1,135,589,482
1929-30.....	231.21	10,529,703,491	9.58	1,008,387,617
1930-31.....	234.18	10,200,232,330	7.21	735,183,862
1931-32.....	227.73	10,624,504,730	4.05	430,020,272

Average live weight and cost compiled from monthly slaughter reports of the cold-storage report section Bureau of Agricultural Economics. Totals computed.

TABLE 6.—*Average price of hogs per 100 pounds and of No. 3 yellow corn per bushel at Chicago, annual, 1900-1932, by months, 1932*<sup>1</sup>

Year	Hogs	Corn	Year	Hogs	Corn	Year and month	Hogs	Corn
1900.....	\$5.05	\$0.38	1915.....	\$7.11	\$0.73	1930.....	\$9.50	\$0.82
1901.....	5.85	.48	1916.....	9.54	.82	1931.....	6.16	.52
1902.....	6.82	.59	1917.....	15.58	1.66	1932.....	3.81	.30
1903.....	5.97	.46	1918.....	17.58	1.61	January....	4.00	.37
1904.....	5.11	.49	1919.....	18.10	1.59	February...	3.89	.34
1905.....	5.25	.49	1920.....	14.10	1.42	March.....	4.33	.33
1906.....	6.27	.46	1921.....	8.51	.56	April.....	3.85	.32
1907.....	6.10	.53	1922.....	9.29	.62	May.....	3.34	.31
1908.....	5.69	.68	1923.....	7.60	.82	June.....	3.62	.30
1909.....	7.43	.67	1924.....	8.18	.96	July.....	4.58	.32
1910.....	8.90	.58	1925.....	12.03	1.03	August.....	4.21	.32
1911.....	6.73	.58	1926.....	12.39	.75	September..	4.00	.30
1912.....	7.56	.68	1927.....	10.00	.86	October....	3.50	.26
1913.....	8.34	.61	1928.....	9.53	.98	November..	3.34	.25
1914.....	8.31	.69	1929.....	10.26	.93	December..	3.04	.23

<sup>1</sup> Simple average of monthly quotations.  
Division of Statistical and Historical Research.  
Compiled as follows:  
Hogs, prior to 1920 from the Chicago Drivers' Journal Yearbook; subsequent figures average of packer and shipper purchases, market-reporting service, Bureau of Agricultural Economics.  
Corn, from the Chicago Daily Trade Bulletin. Average of daily prices weighted by car-lot sales.

TABLE 7.—*Lard, refined, and lard substitutes: Average price per 100 pounds, Chicago, annual 1920-1932, by months, 1932*

Year	Lard refined	Lard substitutes	Year and month	Lard refined	Lard substitutes	Year and month	Lard refined	Lard substitutes
1920.....	\$22.25	\$20.10	1929.....	\$12.97	\$12.21	1932—Contd.		
1921.....	13.21	11.06	1930.....	12.02	11.30	June.....	\$5.33	\$4.93
1922.....	13.07	12.68	1931.....	9.02	8.81	July.....	6.96	6.44
1923.....	13.90	13.91	1932.....	6.25	5.88	August.....	7.00	6.50
1924.....	14.65	13.95	January....	6.50	6.31	September..	6.75	6.25
1925.....	17.90	14.12	February...	6.53	6.12	October....	6.25	5.75
1926.....	16.91	14.84	March.....	6.70	6.25	November..	6.19	5.87
1927.....	13.66	11.76	April.....	6.00	5.75	December..	5.28	5.15
1928.....	13.30	12.82	May.....	5.50	5.25			

Compiled from data of the reporting service of the Division of Livestock, Meats, and Wool of the Bureau of Agricultural Economics.

TABLE 8.—Comparison of the value of 100 pounds of live hog with the wholesale and retail values of the principal products derived therefrom, 1924–1932

Year	Value of 100 pounds of live hog <sup>1</sup>	Wholesale value of products (53.78 pounds) <sup>2</sup>	Retail value of products (52.64 pounds) <sup>2</sup>	Wholesale margin	Retail margin	Difference between values of 100 pounds of live hog and 52.64 pounds of hog products at retail
1924.....	\$8.47	\$10.00	\$13.19	\$1.53	\$3.19	\$4.72
1925.....	12.23	13.78	16.68	1.55	2.90	4.45
1926.....	12.94	14.86	18.42	1.92	3.56	5.48
1927.....	10.45	12.73	16.10	2.28	3.37	5.65
1928.....	9.70	11.73	15.46	2.03	3.73	5.76
1929.....	10.50	12.14	15.01	1.64	2.87	4.51
1930.....	9.85	11.90	14.13	2.05	2.23	4.28
1931.....	6.65	9.25	11.43	2.60	2.18	4.78
1932.....	4.08	6.09	8.87	2.01	2.78	4.79

<sup>1</sup> Chicago prices of butcher, bacon, and shipper hogs, 200–250 pounds, medium to choice grade until June, 1930; 200–220 pounds, good to choice grade, June, 1930, to date.

<sup>2</sup> Wholesale and retail values in New York City of principal hog products obtained from 100 pounds of live hog, computed on following products: Wholesale smoked hams, bacon, picnics, fresh loins, and carton lard. Difference in weight of products on wholesale and retail is due to loss in weight as a result of trimming and evaporation.

TABLE 9.—Indexes of retail price, consumption, and retail value of pork and lard and of consumer incomes, 1921–1931

[1921–1930=100]

Year	Pork, excluding lard			Lard			Consumer incomes <sup>4</sup>
	Retail price <sup>1</sup>	Consumption <sup>2</sup>	Retail value <sup>3</sup>	Retail price <sup>1</sup>	Consumption <sup>2</sup>	Retail value <sup>3</sup>	
1921.....	97.5	85.2	83.0	94.7	75.6	71.8	72.4
1922.....	93.8	89.8	84.1	89.5	96.3	86.3	78.2
1923.....	88.7	103.2	91.4	93.2	105.5	98.5	92.2
1924.....	87.7	105.1	92.1	99.5	108.1	107.8	92.8
1925.....	104.9	96.4	101.0	122.1	94.1	115.1	104.7
1926.....	113.7	95.1	103.1	115.3	97.9	113.1	107.1
1927.....	107.2	100.5	107.6	101.6	101.0	102.8	108.7
1928.....	101.6	109.7	111.4	97.9	109.0	106.9	118.4
1929.....	104.4	109.3	114.0	96.3	107.2	103.5	120.4
1930.....	101.6	105.7	107.3	89.5	105.1	94.3	105.0
1931.....	86.1	106.9	91.9	70.0	110.3	77.3	<sup>5</sup> 83.5

<sup>1</sup> Computed from prices of the Bureau of Labor Statistics.

<sup>2</sup> Computed from consumption figures as given in Statistics of Meat Production, Consumption, and Foreign Trade of the United States, preliminary report, Bureau of Agricultural Economics.

<sup>3</sup> Value computed from above figures.

<sup>4</sup> Derived from estimates of gross incomes of corporations. Corporate income may be considered as a reflection of expenditures of corporations for labor, materials, services, and dividends, and therefore in a broad sense, a measure of incomes of urban consumers, even though it does not reflect the incomes of some important groups of our population.

<sup>5</sup> Preliminary estimate.



TABLE 10.—*Pork and lard: Exports from the United States, 1900–1932*

Year	Exports <sup>1</sup>			Ratio of pork ex- ports to lard exports	Percentage of pro- duction	
	Total pork and lard	Pork	Lard		Pork	Lard
	<i>Million pounds</i>	<i>Million pounds</i>	<i>Million pounds</i>		<i>Per cent</i>	<i>Per cent</i>
1900	1,462	847	615	1.38	14.3	38.0
1901	1,471	859	612	1.40	14.6	37.9
1902	1,148	641	507	1.26	12.0	35.2
1903	1,110	569	541	1.05	10.4	36.2
1904	1,156	585	571	1.02	10.0	35.8
1905	1,392	684	708	.97	11.9	45.6
1906	1,418	733	685	1.07	12.3	41.7
1907	1,209	615	594	1.04	9.7	33.4
1908	1,219	632	587	1.08	9.6	32.8
1909	947	485	462	1.05	8.1	30.7
1910	706	324	382	.85	5.7	26.6
1911	1,080	470	610	.77	7.1	36.5
1912	1,014	456	558	.82	7.1	34.3
1913	1,049	468	581	.81	7.1	34.6
1914	858	393	465	.85	6.0	28.1
1915	1,407	913	494	1.85	13.1	27.8
1916	1,485	1,022	463	2.21	13.8	25.0
1917	1,329	941	388	2.43	15.3	24.9
1918	2,273	1,714	559	3.07	21.8	28.2
1919	2,667	1,878	789	2.38	24.0	38.7
1920	1,572	929	643	1.44	12.5	31.3
1921	1,662	759	903	.84	9.9	42.7
1922	1,526	727	799	.91	8.8	33.9
1923	2,035	960	1,075	.89	10.0	38.6
1924	1,721	735	986	.75	7.9	35.9
1925	1,268	549	719	.76	6.7	32.3
1926	1,159	426	733	.58	5.2	31.5
1927	1,033	316	717	.44	3.7	30.4
1928	1,135	334	801	.42	3.6	30.9
1929	1,245	379	866	.44	4.1	33.3
1930	988	314	674	.47	3.6	28.8
1931	794	193	601	.32	2.2	25.2
1932	711	137	574	.24	---	---

<sup>1</sup> Exports include shipments to noncontiguous territories.

Compiled from "Statistics of Meat Production, Consumption and Foreign Trade of the United States," preliminary report, Bureau of Agricultural Economics.

TABLE 11.—*Hogs: Number and inspected slaughter in Germany and Denmark, 1907–1932*

[Thousands]

Year	Germany		Denmark		Year	Germany		Denmark	
	Total number <sup>1</sup>	Number slaugh-tered <sup>2</sup>	Total number <sup>3</sup>	Number slaugh-tered <sup>4</sup>		Total <sup>1</sup> number	Number slaugh-tered <sup>2</sup>	Total number <sup>3</sup>	Number slaugh-tered <sup>4</sup>
1907	22, 147	16, 398			1919	10, 271	<sup>4</sup> 1, 368	716	456
1908		16, 508			1920	11, 518	3, 024	<sup>6</sup> 1, 116	930
1909		15, 593	1, 468		1921	14, 153	6, 825	1, 430	1, 641
1910		16, 335			1922	15, 818	6, 923	1, 899	2, 215
1911		18, 616		2, 211	1923	14, 678	5, 833	2, 855	3, 414
1912		18, 217		2, 434	1924	17, 308	10, 257	2, 868	4, 024
1913	21, 924	17, 893		2, 405	1925	16, 895	12, 090	2, 517	3, 766
1913		<sup>4</sup> 16, 429			1926	16, 200	13, 072	3, 122	3, 838
1914	25, 659	19, 441	2, 497	2, 858	1927	19, 424	17, 279	3, 731	5, 098
1914			<sup>5</sup> 2, 715		1928	22, 899	19, 480	3, 363	5, 373
1915	25, 341	13, 293		2, 594	1929	20, 106	17, 252	3, 616	4, 994
1916	17, 287	6, 548		2, 542	1930	19, 944	17, 994	4, 872	6, 132
1917	17, 002	5, 795		2, 479	1931	23, 365	20, 488	5, 453	7, 320
1918	<sup>6</sup> 10, 778	2, 430	621	324	1932	23, 808	<sup>7</sup> 19, 156	<sup>8</sup> 4, 886	<sup>9</sup> 7, 575

<sup>1</sup> From official sources based on census of December of the preceding year.

<sup>2</sup> From official sources.

<sup>3</sup> From official sources based on census of July 15 of the current year.

<sup>4</sup> Change in boundaries.

<sup>5</sup> 1914 estimate for present boundaries.

<sup>6</sup> For this and subsequent years estimates are for new boundaries.

<sup>7</sup> Estimate based on 9 months' slaughter.

<sup>8</sup> June 20.

<sup>9</sup> Preliminary estimate.

TABLE 12.—*Estimated total disappearance of important edible vegetable oils in the United States and net imports, including animal fats and oils other than lard and butter, into the United Kingdom and Germany, average, 1921–1925, 1926–1930, and annual, 1921–1931*

Year	United States, estimated total disappearance <sup>1</sup>	United Kingdom, net imports <sup>2</sup>	Germany, net imports <sup>3</sup>	Year	United States, estimated total disappearance <sup>1</sup>	United Kingdom, net imports <sup>2</sup>	Germany, net imports <sup>3</sup>
	<i>1,000 pounds</i>	<i>1,000 pounds</i>	<i>1,000 pounds</i>		<i>1,000 pounds</i>	<i>1,000 pounds</i>	<i>1,000 pounds</i>
Average:							
1921–1925.....	1,693,296	870,150	<sup>4</sup> 768,194	1925.....	2,134,015	947,550	928,225
1926–1930.....	2,348,829	950,814	1,125,331	1926.....	2,175,724	908,639	1,009,703
1921.....	1,570,244	823,670	( <sup>5</sup> )	1927.....	2,285,501	857,300	1,035,348
1922.....	1,563,783	810,267	915,813	1928.....	2,298,257	944,914	1,129,614
1923.....	1,532,379	879,414	617,597	1929.....	2,492,669	1,024,051	1,211,809
1924.....	1,666,060	889,847	611,140	1930.....	2,491,994	1,019,167	1,240,180
				1931.....	2,115,328	1,024,817	1,304,296

<sup>1</sup> Compiled from Bureau of Census reports. Total disappearance estimate represents total quantity of oil going directly into trade channels or used for manufacture of other products. That the figures might be more comparable, all oils except olive oil were expressed in terms of crude oil. Oils included were cottonseed, peanut, olive, edible, coconut, and corn.

<sup>2</sup> Compiled from Annual Statements of the Trade of the United Kingdom. Net imports were computed by deducting exports and reexports from total imports. Oleaginous raw materials were converted to an oil-equivalent basis. All vegetable oils except olive oil were expressed in terms of crude oils. The fats, oils, and raw materials included were oleomargarine, lard imitation, fish and marine oils, coconut oil, cottonseed oil, peanut oil, olive oil, palm-kernel oil, margarine, cottonseed, sesame, peanuts, palm kernels, and copra.

<sup>3</sup> Compiled from Der Auswärtigen Handel Deutschlands. Net imports were computed by deducting exports and reexports from total imports. Oleaginous raw materials were converted to an oil-equivalent basis. The fats, oils, and raw materials included were oleomargarine, animal tallow, stearine, fish oils, peanut oil, cottonseed oil, palm-kernel oil, coconut oil and butter, oleine, margarine and margarine mixtures, olive oil, peanuts, sesame, palm kernels, and copra.

<sup>4</sup> 4-year average only.

<sup>5</sup> Not available for 1921.

TABLE 13.—*Bacon: Imports into the United Kingdom, total compared with imports from the United States and Denmark, 1900–1931* <sup>1</sup>

Year	Country of origin				Percentage of total		
	United States	Denmark	Other countries	Total	United States	Denmark	United States and Denmark
	<i>1,000 pounds</i>	<i>1,000 pounds</i>	<i>1,000 pounds</i>	<i>1,000 pounds</i>	<i>Per cent</i>	<i>Per cent</i>	<i>Per cent</i>
1900.....	401,870	115,175	63,816	580,861	69.2	19.8	89.0
1901.....	433,502	110,010	48,310	591,822	73.2	18.6	91.8
1902.....	367,792	140,630	61,625	570,047	64.5	24.7	89.2
1903.....	324,073	167,563	85,947	577,583	56.1	29.0	85.1
1904.....	314,284	193,075	103,300	610,659	51.5	31.6	83.1
1905.....	310,826	164,829	142,469	618,124	50.3	26.7	77.0
1906.....	310,903	163,955	145,916	620,774	50.1	26.4	76.5
1907.....	255,432	202,377	143,139	600,948	42.5	33.7	76.2
1908.....	320,131	229,545	87,127	636,803	50.3	36.0	86.3
1909.....	245,174	202,691	70,187	518,052	47.3	39.1	86.4
1910.....	146,375	200,975	85,350	432,700	33.8	46.4	80.2
1911.....	203,598	237,674	104,027	545,299	37.3	43.6	80.9
1912.....	190,215	259,695	69,109	519,019	36.6	50.0	86.6
1913.....	201,978	261,514	80,592	544,084	37.1	48.1	85.2
1914.....	170,571	304,059	96,355	570,985	29.9	53.3	83.2
1915.....	395,315	231,081	104,222	730,618	54.1	31.6	85.7
1916.....	415,551	170,569	178,557	764,677	54.3	22.3	76.6
1917.....	388,314	125,793	221,461	735,568	52.8	17.1	69.9
1918.....	968,276	2,407	202,356	1,173,039	82.5	.2	82.7
1919.....	660,074	744	266,676	927,494	71.2	.1	71.3
1920.....	376,574	78,856	173,073	628,503	59.9	12.5	72.4
1921.....	261,050	207,187	147,653	635,890	44.2	32.6	76.8
1922.....	275,897	264,738	123,766	664,401	41.5	39.8	61.3
1923.....	316,810	395,423	126,074	838,307	37.8	47.2	85.0
1924.....	205,388	446,562	163,183	815,133	25.2	54.8	80.0
1925.....	166,924	418,749	201,135	786,808	21.2	53.2	74.4
1926.....	133,181	407,857	247,125	788,163	16.9	51.7	68.6
1927.....	71,801	569,140	257,103	898,044	8.0	63.4	71.4
1928.....	60,240	602,089	267,022	929,351	6.5	64.8	71.3
1929.....	71,075	557,427	243,337	871,839	8.2	63.9	72.1
1930.....	53,574	685,244	253,558	992,376	5.4	69.1	74.5
1931.....	20,969	821,978	372,222	1,215,169	1.7	67.6	69.3

<sup>1</sup> Reexports not deducted. Excludes imports from Irish Free State.

Compiled from data in Annual Statement of the Trade of the United Kingdom and converted to United States equivalents.



TABLE 14.—*Ham: Imports into the United Kingdom, total compared with imports from the United States and Canada, 1900–1931*<sup>1</sup>

Year	Country of origin				Percentage of total		
	United States	Canada	Other countries	Total	United States	Canada	United States and Canada
	<i>1,000 pounds</i>	<i>1,000 pounds</i>	<i>1,000 pounds</i>	<i>1,000 pounds</i>	<i>Per cent</i>	<i>Per cent</i>	<i>Per cent</i>
1900	163,999	20,727	401	185,127	88.6	11.2	99.8
1901	178,840	12,960	443	192,243	93.0	6.7	99.7
1902	147,031	18,360	625	166,016	88.6	11.1	99.7
1903	105,187	22,120	522	127,829	82.3	17.3	99.6
1904	116,778	22,034	516	139,328	83.8	15.8	99.6
1905	114,560	32,723	367	147,650	77.6	22.2	99.8
1906	117,121	28,503	284	145,908	80.3	19.5	99.8
1907	93,189	33,258	410	126,857	73.5	26.2	99.7
1908	130,995	5,898	332	137,225	95.5	4.3	99.8
1909	120,240	6,002	209	126,451	95.1	4.7	99.8
1910	74,567	4,214	1,761	80,542	92.6	5.2	97.8
1911	99,378	6,977	584	106,939	92.9	6.5	99.4
1912	91,840	8,347	375	100,562	91.3	8.3	99.6
1913	85,184	10,089	486	95,759	89.0	10.5	99.5
1914	86,778	6,606	565	93,949	92.4	7.0	99.4
1915	152,771	12,988	52	165,811	92.1	7.8	99.9
1916	154,935	6,389	115	161,439	96.0	3.9	99.9
1917	126,194	5,608	377	132,179	95.5	4.2	99.7
1918	158,929	12,396	2,829	174,154	91.3	7.1	98.4
1919	192,457	8,373	2,243	203,073	94.8	4.1	98.9
1920	31,762	2,887	1,678	36,327	87.4	7.9	95.3
1921	114,320	10,518	1,418	126,256	90.5	8.3	98.8
1922	147,903	10,793	1,827	160,523	92.1	6.7	98.8
1923	181,475	12,802	1,397	195,674	92.7	6.5	99.2
1924	165,226	16,344	1,664	183,234	90.2	8.9	99.1
1925	146,685	21,112	2,110	169,907	86.3	12.4	98.7
1926	112,041	18,224	3,596	133,861	83.7	13.6	97.3
1927	80,204	14,975	5,905	101,084	79.3	14.8	94.1
1928	85,101	12,911	7,495	105,507	80.7	12.2	92.9
1929	94,260	10,986	9,983	115,229	81.8	9.5	91.3
1930	91,885	9,412	11,342	112,639	81.6	8.4	90.0
1931	67,271	8,119	17,699	93,089	72.3	8.7	81.0

<sup>1</sup> Reexports not deducted.  
Compiled from data in Annual Statement of the Trade of the United Kingdom and converted to United States equivalents.

TABLE 15.—*Lard: Imports into the United Kingdom and Germany, total compared with imports from the United States, 1900–1931*

Year	United Kingdom <sup>1</sup>			Germany <sup>2</sup>		
	Total im- ports	From the United States		Total im- ports	From the United States	
		Quantity	As a per- centage of total imports		Quantity	As a per- centage of total imports
	<i>1,000 pounds</i>	<i>1,000 pounds</i>	<i>Per cent</i>	<i>1,000 pounds</i>	<i>1,000 pounds</i>	<i>Per cent</i>
1900.....	215,855	200,770	93.0	224,198	221,769	98.9
1901.....	220,221	206,310	93.7	215,904	210,709	97.6
1902.....	184,893	172,229	93.2	181,379	174,119	96.0
1903.....	194,072	178,083	91.8	182,924	178,176	97.4
1904.....	205,054	187,040	91.2	204,239	199,739	97.8
1905.....	225,378	186,033	82.5	254,874	251,104	98.5
1906.....	229,529	189,430	82.5	271,427	266,468	98.2
1907.....	220,095	189,245	86.0	231,053	223,330	96.7
1908.....	222,599	186,285	83.7	239,644	230,812	96.3
1909.....	197,185	190,801	96.8	206,760	196,460	95.0
1910.....	162,679	150,445	92.5	128,722	117,083	91.0
1911.....	204,149	192,561	94.3	212,796	202,969	95.4
1912.....	200,535	186,276	92.9	233,956	221,343	94.6
1913.....	224,600	209,327	93.2	236,745	223,065	94.2
1914.....	197,692	187,314	94.8	(3)	(3)	-----
1915.....	247,569	235,063	94.9	(3)	(3)	-----
1916.....	216,589	209,056	96.5	(3)	(3)	-----
1917.....	168,022	154,504	92.0	(3)	(3)	-----
1918.....	309,165	289,653	93.7	(3)	(3)	-----
1919.....	243,974	205,372	84.2	(3)	(3)	-----
1920.....	162,008	128,755	79.5	272,077	251,581	92.5
1921.....	254,903	222,923	87.5	322,324	297,361	92.3
1922.....	257,526	234,474	91.0	144,125	126,306	87.6
1923.....	272,787	234,709	86.0	275,803	242,912	88.1
1924.....	278,768	222,053	79.7	293,252	248,410	84.7
1925.....	255,819	200,211	78.3	224,843	181,542	80.7
1926.....	252,470	209,628	83.0	239,354	208,200	87.0
1927.....	268,468	220,291	82.1	213,283	180,992	84.9
1928.....	274,042	230,308	84.0	192,956	162,876	84.4
1929.....	293,548	252,907	86.2	212,780	186,680	87.7
1930.....	280,560	243,322	86.7	177,179	140,368	79.2
1931.....	284,527	231,311	81.3	183,071	125,504	68.6

<sup>1</sup> Imports into the United Kingdom compiled from data in Annual Statement of the Trade of the United Kingdom and converted to United States equivalents. Reexports not deducted.  
<sup>2</sup> Imports into Germany from Der Auswärtigen Handel Deutschlands.  
<sup>3</sup> Not available for war years, 1914 to 1919.



TABLE 16.—Hog products: Wholesale price per 100 pounds at British markets, annual, 1924–1932: by months, 1932

Year and month	Liverpool <sup>1</sup>			Lon- don, lard, re- fined <sup>2</sup>	Year and month	Liverpool <sup>1</sup>			Lon- don, lard, re- fined <sup>2</sup>
	Ameri- can short cut green hams	Ameri- can green bellies	Danish Wilt- shire sides			Ameri- can short cut green hams	Ameri- can green bellies	Danish Wilt- shire sides	
1924 .....	\$19.44	\$16.65	\$21.16	\$15.44	1932—Contd.				
1925 .....	25.97	25.92	26.79	18.97	March .....	\$12.42	( <sup>3</sup> )	\$9.15	\$7.29
1926 .....	28.73	23.78	26.92	17.01	April .....	12.79	( <sup>3</sup> )	9.50	6.86
1927 .....	22.98	19.99	21.16	14.84	May .....	12.60	\$8.96	10.21	6.42
1928 .....	22.12	18.46	21.48	14.03	June .....	11.66	8.45	9.87	6.34
1929 .....	23.78	19.49	24.61	13.55	July .....	13.33	7.83	9.23	7.55
1930 .....	21.98	18.68	20.72	12.64	August .....	11.93	8.16	10.88	7.71
1931 .....	16.57	12.59	13.50	9.78	September .....	11.86	9.53	11.16	7.71
1932 .....	11.43	8.50	9.42	7.20	October .....	9.81	8.63	8.48	7.35
January .....	11.23	8.87	8.24	7.17	November .....	8.82	8.13	8.37	7.70
February .....	11.57	8.95	8.30	7.30	December .....	9.16	7.47	9.60	<sup>4</sup> 7.05

<sup>1</sup> Agricultural Market Report, London. Prices, 1924 to August, 1931, converted at par of exchange. September, 1931, and subsequently, weekly average price converted at the rate of exchange as of each Wednesday.

<sup>2</sup> Compiled from records supplied by H. E. Reed, Bureau of Agricultural Economics, foreign agricultural representative at London. Converted at monthly average rate of exchange as given in Federal Reserve Bulletins, 1924 and 1925; at par of exchange, 1926 to August, 1931; subsequently, at monthly average rate of exchange, Federal Reserve Bulletins.

<sup>3</sup> No quotation.

<sup>4</sup> Estimate.

TABLE 17.—Price per 100 pounds of heavy hogs at Berlin and lard at Hamburg, annual, 1925–1932; by months, 1932

Year and month	Hogs, 220–265 pounds, Berlin <sup>1</sup>	Lard, whole- sale, Ham- burg <sup>2</sup>	Year and month	Hogs, 220–265 pounds, Berlin <sup>1</sup>	Lard, whole- sale, Ham- burg <sup>2</sup>
1925 .....	\$16.18	\$18.78	1932—Continued		
1926 .....	16.59	17.00	March .....	\$8.25	\$7.35
1927 .....	13.43	14.51	April .....	7.62	7.00
1928 .....	13.98	14.27	May .....	7.16	6.34
1929 .....	17.10	13.79	June .....	7.73	6.40
1930 .....	14.15	12.47	July .....	8.25	7.71
1931 .....	10.02	10.30	August .....	9.42	8.05
1932 .....	8.18	7.63	September .....	8.68	8.19
1932—			October .....	8.64	8.16
January .....	8.09	7.95	November .....	8.36	8.59
February .....	8.19	7.40	December .....	7.80	8.39

<sup>1</sup> Data for 1925 compiled from Wirtschaft und Statistik, Germany; beginning 1926, cable reports of weekly averages from foreign agricultural service, Bureau of Agricultural Economics. Conversions made at par of exchange.

<sup>2</sup> Cable reports of weekly average prices from foreign agricultural service, Bureau of Agricultural Economics, Berlin. Conversions made at par of exchange.



